PETROLEUM WEEK

SEPTEMBER 30, 1955

■ A McGRAW-HILL PUBLICATION

Everyone will benefit

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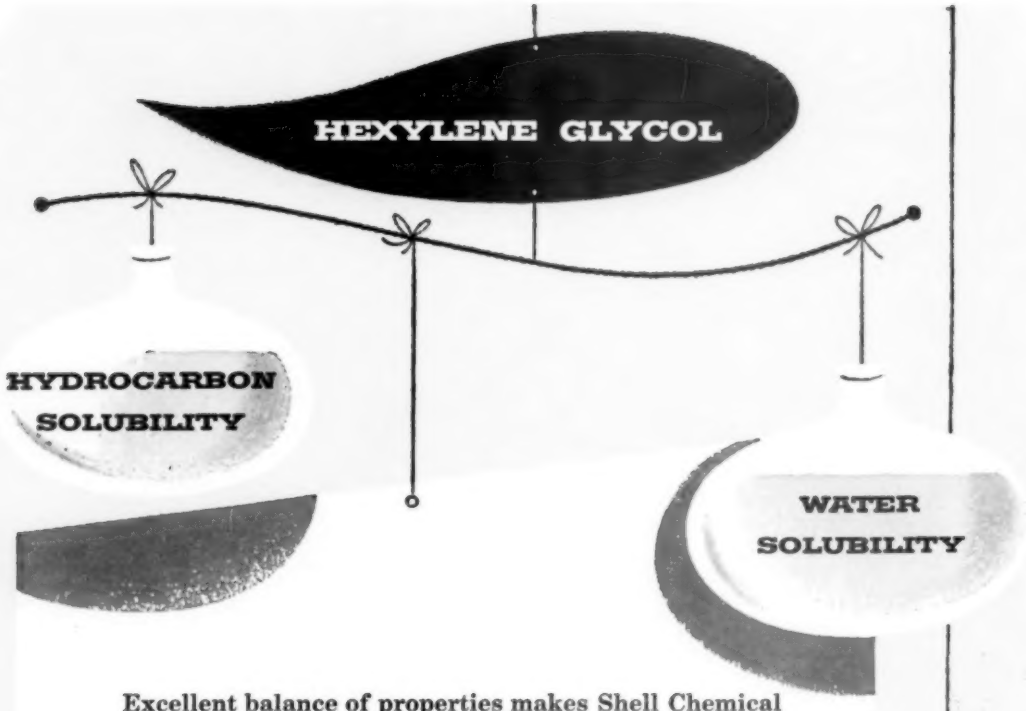

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news pictures

by your Ethyl Service Reporter

INDUSTRY-WIDE PROGRAM—This service-station dealer is giving Ethyl's "Drive More" program his full support. Using one of the Ethyl display pieces, he's urging his customers to "Drive More . . . it gets cheaper by the mile!" This national program—designed to increase automobile usage and service-station sales—is in high gear as it goes into its fifth month.

MILESTONE—The four billionth pound of tetraethyllead shipped by Ethyl Corporation was in this tank car of new Motor Plus recently dispatched from the Baton Rouge plant. Ethyl statisticians estimate that, at average TEL usage, more than 520 billion gallons of motor and aviation gasoline have been improved with "Ethyl" antiknock compound since it was first introduced 32 years ago.

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New York 17, N. Y.

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NATIONAL PETROLEUM NEWS
PETROLEUM PROCESSING
PLATT'S OILGRAM NEWS SERVICE
PLATT'S OILGRAM PRICE SERVICE

Vol. 1, No. 13—PETROLEUM WEEK—September 30, 1955

Published weekly by McGraw-Hill Publishing Co., Inc., James H. McGraw, (1860-1948), Founder.

Executive Editorial, and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Publication Office, 871 N. Franklin St., Chicago 10, Ill. Donald C. McGraw, President; Paul Montgomery, Executive Vice President; Joseph A. Gerardi, Vice President and Treasurer; John J. Cooke, Secretary; Nelson Bond, Executive Vice President, Publications Division; Ralph B. Smith, Vice President and Editorial Director; Joseph H. Allen, Vice President and Director of Advertising; J. E. Blackburn, Jr., Vice President and Circulation Director.

Subscriptions: Address correspondence to Petroleum Week, Subscription Service, 330 W. 42nd St., New York 36, N. Y. Current single copies, 35¢. Subscription rates, all countries: $3 for one year, $4 for two years, $5 for three years. Orders must indicate company, industry division, and position.

Second class mail privileges authorized at Chicago, Ill. Printed in U. S. A.

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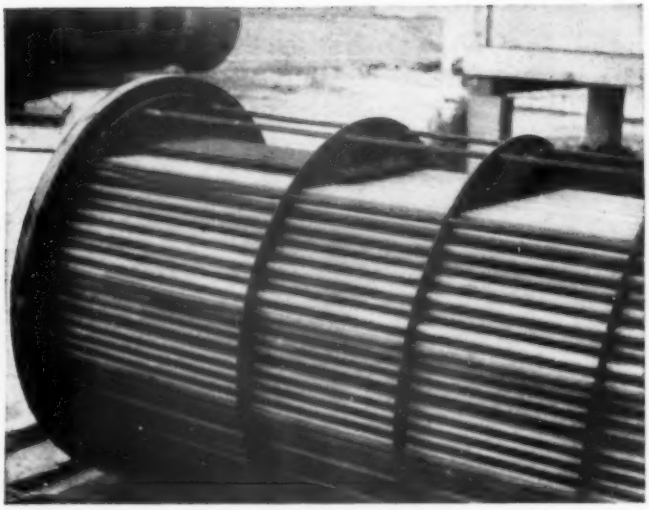
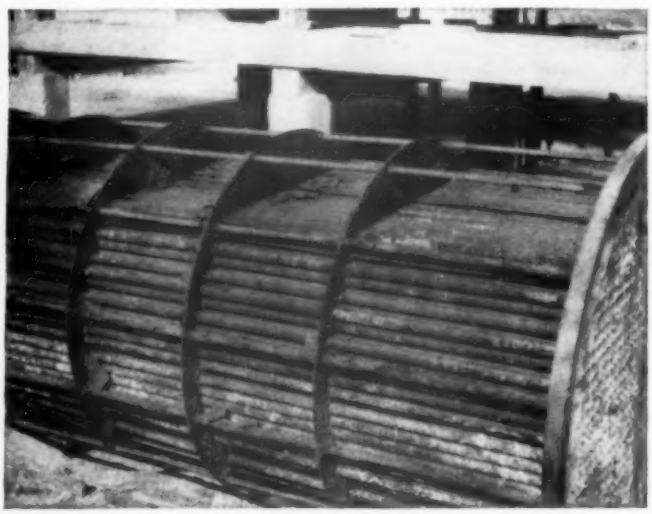


This?.. Here's what a refiner likes to see when he pulls his bundles at turn-around time. This clean, uncorroded appearance is typical of what can be expected when you use Polyrad.



or this?.. This is an all too common sight at turn-around time. Corroded and fouled bundles such as these call either for costly replacement, repair, or cleaning.

These two bundles from the overhead condensing system of a Gulf Coast refinery tell a story. One is what the refiner likes to find at turn-around time: the other, what he is likely to discover without Polyrad.

More and more refineries have found that when they use Polyrad, the filming amine inhibitor, they can expect to find bundles free of corrosion, ready for immediate return to service. As a result turn-around time no longer need be headache time.

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60-Second Summary / WHAT'S HAPPENING IN OIL

September 30, 1955

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Distillate and residual fuel demand looks good for the six-month "heating season" that begins this week. But weather will be a big factor in the final results, may decide whether present inventories are excessive. . . . p. 9

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ODM's decision on oil imports may be announced by Oct. 15. That is the date Defense Mobilizer Flemming used in talks this week with three coal area congressmen who urged him to recommend a cut. But Flemming didn't commit himself on the controversial issue.

•

Automation may reach its practical ultimate in the refinery of the future. A computer control center will do all the "thinking," regulate product input and output to get what is wanted when it is wanted. . . . p. 24

•

The drive toward bigger oil unions is making a little progress. Last week, four independent unions of Esso merged into a new union — the International Petroleum & Chemical Workers. Their first goal: to get more of the 36 remaining Esso independents to join them. . . . p. 10

•

Contract for sale of Mexican gas to a U.S. pipeline company was signed this week. Under its terms, Petroleos Mexicanos will deliver 100-million cf/d to 200-million cf/d to Texas Eastern Transmission Corp. The gas, from Pemex's new absorption plant at Reynosa, is priced at 14.2¢ per mcf with escalator clause. FPC approval of the deal must be obtained.

•

Natural gasoline can be moved through crude oil lines now with little contamination. Phillips Pipe Line Co. discovered the trick: Use mechanical scrapers to remove excess paraffin. . . . p. 29

•

California Standard has lifted the curtain a little on its 30-year effort to develop a successful turbodrill. Some results: favorable performance and economy in shallow drilling, unfavorable tendency to crooked hole. . . . p. 14

•

Look for a new flurry of activity now that oil's been found in Israel. But geologic reports indicate the eight companies holding prospecting rights won't approach the fabulous production of the Persian Gulf. . . . p. 11

•

The door has been locked to further U.S. oil company movement into Argentina. However, it's likely the new Lonardi regime will seek U.S. capital and technical know-how to push government development of Argentine oil resources. . . . p. 22

Looking Ahead in Washington

McGraw-Hill
Washington
Bureau

September 30, 1955

President Eisenhower's illness will inject more politics into oil. Republican strategists realize they can no longer count on the President's immense popularity to carry them through the 1956 elections. So pocketbook issues take on a new importance. This means more concern for the "consumer" viewpoint. Political realities will color GOP attitudes on natural gas, oil imports, and antitrust problems. And in the short view, decisions will be stalled until the President's condition improves.

Natural gas legislation may get hurt. Consuming-state Republicans were willing to support an exemption bill as long as Eisenhower's prestige stood behind them. They can't bank on that now. Loss of just a few votes could mean defeat in the battle for exempting producers.

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The oil imports situation will be affected first. Defense Mobilizer Flemming was giving more attention to consumer reaction even before the President's illness. Complaints are pouring in from East Coast consumers and their congressmen as a result of fuel oil's short supply and higher price. Vote-conscious Republican advisers will counsel a go-slow approach to avoid giving northern Democrats another issue.

Smaller importers are entering the picture. The office of Defense Mobilization realizes it can't untangle the imports puzzle without going beyond the 18 companies already queried. Letters are going out to others, and the resulting data will be analyzed before a further move is made. It all adds up to delay.

•

ODM staff experts tell Flemming restrictions are practical, if found necessary. Harold D. Gresham, ODM trade specialist who spent five years as financial adviser to the Iranian government, says there are ample guideposts in the sugar quota act and the cotton acreage allotment system.

Legislation is already being drawn up—just in case. Rep. Frank Ikard (D., Tex.), member of the House committee dealing with trade laws, is preparing a bill which would direct the President to "prorate" imports. Periodic hearings would be held to determine proper influx of foreign oil, and the share to which each importer is entitled.

The State Dept. is taking a middle-of-the-road approach, despite quiet pressure from foreign oil-producing countries. But Under Secretary of State Herbert Hoover, Jr., agrees imports should not substantially exceed the 1954 ratio to domestic production.

•

Ties between oil and rubber companies are in for another going-over. A group headed by Sen. Paul Douglas (D., Ill.) plans an investigation into disposal of the government-owned synthetic rubber facilities. Wales Brown, an expert with an antidisposal slant, will head the staff.

•

Watch for a tipoff on the "how" of gas-producer regulation. The Federal Power Commission has not ruled on how producer rates should be set, in the absence of further legislation. But FPC attorneys must soon face up to the question in several cases. Their approach will carry great weight with the commission.

Jim Hodges is shown at right with a Du Pont test car—in one of a series of ads about Du Pont Petroleum Chemicals Division representatives and the services they provide the oil industry.

How **Jim Hodges** shops for knock-free gasoline

JAMES A. HODGES, an enthusiastic hunter and fisherman in his spare time, now works out of our Los Angeles regional office. An S.A.E. member of long standing, his experience includes 11 years as a service engineer for the Chevrolet Division of General Motors.

It looked just like anybody's new family car when Jim Hodges eased it to a stop at one of the pump islands.

But a startled look snapped over the station attendant's face when he took the order. And no wonder! All Jim asked for was, "a gallon of premium and a gallon of regular."

The attendant's expression grew even more astonished as Jim opened the trunk. Ten one-gallon cans hooked up with a lot of piping filled the trunk.

"The premium goes in here and the regular in that one," said Jim, pointing to two of the cans.

"Wow!" said the attendant when he had a chance to glance at the dashboard. "You've got more instrument panel there than a fighter plane. How come?"

"This," answered Jim, "is one of the many specially instrumented cars in the Du Pont Fuel Test Fleet. By just flicking these switches, I can change from one fuel to another . . . even vary the timing and other engine operating conditions. Then by reading these dials and listening for engine knock, I can tell exactly how good your gasoline is."

"Then you really hit the jackpot," said the attendant. "That gallon of premium you bought is our refinery's newest top-quality fuel."

"Well, I'll soon know for sure," said Jim as he drove away. And within a few minutes his test run proved that the attendant was right—this really was a *quality* gasoline.

Jim Hodges is an experienced automotive specialist with the Du Pont Petroleum Chemicals Division. Making tests like this, and helping oil companies solve other automotive problems are his stock in trade.

Perhaps Jim can help you, too. And the Du Pont Petroleum Chemicals Division has a lot of men like Jim, all ready to perform a variety of helpful services and to work along with your own staff on technical, marketing, safety and other problems. Since they are as close to you as your telephone, you can reach them by just calling any of the regional offices listed below.

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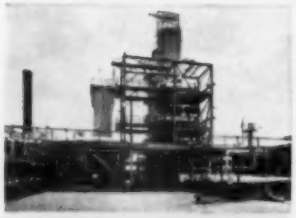

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CATALYTIC CRACKING UNIT: capacity 7,000 barrels a day of total feed.

CATALYTIC POLYMERIZATION UNIT: capacity 1,700 barrels a day of mixed C_3-C_4 stream.

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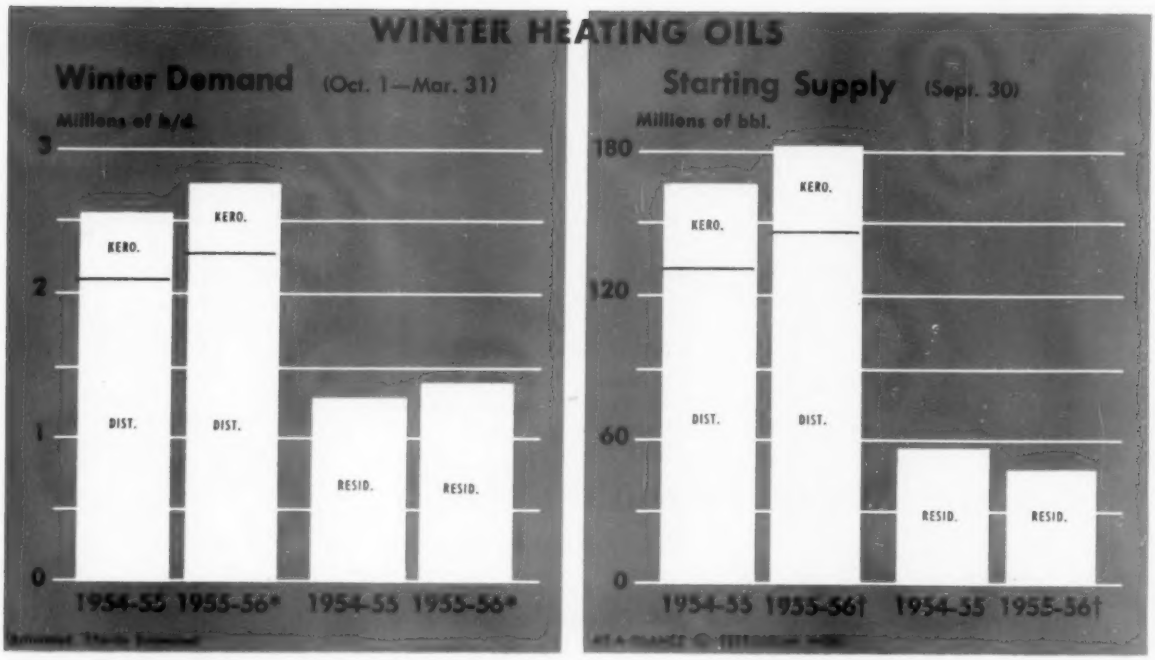

Heating Season Demand Looks Good

The oil industry enters the six-month "heating season" this week with an encouraging outlook. Demand for distillates and residual oil promises to be high, and starting inventories are not unduly burdensome. This outlook for the October-through-March period assumes normal fall and winter weather.

The strong demand indication for the final quarter of this year and the first part of 1956 follows a nine-month period of better-than-anticipated demand for all petroleum products. And it means that:

PRODUCERS can expect increases in domestic crude oil production. Already in the nine months of 1955 just ended, domestic crude output has been 5.8% higher than in the like 1954 period.

REFINERS, however, can expect only a small increase in runs over recent operating levels during the final quarter of this year. Slightly higher throughput rates may be possible in the first quarter of 1956. Even so the estimated required average runs of about 7.6-million b/d in the October-December period would mean an increase of about 8% over refinery runs in the last three months of 1954. Refinery throughput in the first nine months of this year was 7.2% higher than in the January-September period of last year.

MARKETERS can look forward to their best fall and winter sales seasons in history.

Demand for distillates is expected to increase 7.8% and demand for residual fuel will rise about 3% this fall and winter over the previous heating season, according to estimates of oil industry economists surveyed this week by PETROLEUM WEEK.

Demand for distillates (including kerosine) is placed at an average of 2,725,000 b/d for the six-month period starting Oct. 1 (chart above), a gain of 196,000 b/d over the corresponding part of 1954-55. Residual demand is estimated at an average of 1,821,000 b/d, or a gain of 53,000 b/d. For distillate fuel oil, exclusive of kerosine, the outlook is for demand averaging 2,247,000 b/d during the next six months, an increase of 187,000 b/d, or 9%, over the previous fall and winter demand.

Weather will have a major influence on whether or not these demand forecasts materialize.

Heating requirements constitute about 70% of the distillate demand during the October-March period. And, while the last eight winters were milder than "normal," forecasts of market requirements have to be made assuming weather will be seasonally cold, to insure that adequate heating supplies will be available.

Weather will also be the primary factor in determining whether or not current inventories are excessive. The 181.1-million bbl. of distillates now in storage are 9.6% more than a year ago. Inventories of distillate fuel oil, exclusive of kerosine, total 145-million bbl., 13% higher than last Sept. 30.

While this volume of distillate fuel oil is not overly burdensome now, inventories will continue to accumulate during October. Should cold weather arrive later than usual, causing the inventory build-up to last into November, prices will be under pressure before the big winter consuming period starts.

FIRST OFFICERS of the new International Petroleum & Chemical Workers unions are (l. to r.): John C. Ockay, secretary-treasurer; J. Henry Benhoff III, president; and Herbert A. Warnock, vice-president. They want other independents to join them as . . .

New Union Gains Toehold at Esso

Efforts to organize the independent unions of Esso Standard Oil Co. and its parent, Standard Oil Co. (N. J.) into one big union made some headway last week as four of the unions merged into one—the International Petroleum & Chemical workers.

The new union was formally established in a convention at Baltimore, where the four merging units adopted a constitution and bylaws, elected officers, and started planning how to get other Esso independents to join with them to gain joint bargaining action to replace individual-plant union bargaining.

Obviously, the new union still has a long way to go. It has only four of the 40 independent unions in Esso, and represents less than 5,000 of the 35,000 to 40,000 potential members.

There is little evidence of any rush to get on the bandwagon. As long ago as May, three of the locals had ratified the merger: Independent Petroleum Union, Inc., of Baltimore; Standard Refinery Union, Inc., of Bayonne, N. J.; and the Bayonne Marine Employees Union. Since that time, only one other—the Esso Bargemen of New York—took action to move into the new union.

Union leaders are optimistic, however, calling this a "milestone" in Esso's labor relations. J. Henry Benhoff III, president of the new union, says its constitution and bylaws "will put the organization on the same level with national and international unions in this country."

Benhoff says some other Esso unions were "very impressed" by the program outlined at Baltimore, and may sign up later. Representatives of four locals —in addition to those merging—were present at the convention as "observers," and promised to take up the subject of affiliation with their members on their return home. The four were from the Bayway (N. J.) refinery, from a New England sales group, and from the Everett (Mass.) and Charleston (S. C.) refineries.

First task of the new union's officers and executive board will be a new bargaining policy. The initial goal is to set up a demand for liberalizing such benefits as pensions, insurance, and vacation pay, with emphasis on working out a joint termination date for the four unions in the new association. There has been little, if any, dissatisfaction expressed by the union over wages.

Benhoff argues that benefit plans are invariably drawn at top company level for the entire organization and, unlike wages, cannot be varied from plant to plant to meet local conditions without upsetting the plan for the entire company.

Some company officials fear this is merely another union approach to companywide bargaining—which all companies, with the exception of Sinclair Oil Corp., have strongly resisted through the years. However, Benhoff says companywide bargaining on wages is not an immediate goal of the new union.

There has also been speculation that the merger of the Esso unions is part of a long-range plan to lead them eventually into the Oil, Chemical & Atomic Workers Union (CIO). It appears more likely that the new union will use the threat to join OCAW as a weapon in its dealings with Esso.

Biggest immediate problem facing the new union may be to get recognition from Esso for joint negotiation, but Benhoff says: "We've had legal advice and we're sure we're on solid ground. There's no question that we can make the company recognize us."

The new union president hinted that, should the new union fail in its effort to get recognition, it might join OCAW. But he said first emphasis will be on working out a bargaining system for the four unions, with concurrent pressure on other independent Esso unions to join the new IPCW.

Efforts to weld Esso's independent unions into one unit has long been a goal of top oil union leaders. The CIO oil workers, headed by O. A. Knight, have made moves in that direction for years. Their strongest bid to date was in an August bargaining election at the Bayway refinery, where a move to merge that independent into OCAW was narrowly beaten, 1,254 to 1,081 (PW—Sep.2'55,p13).

Last year, when Walter Reuther, CIO president, was urging the CIO chemical workers to merge with the CIO oil workers (OWIU), he said such a step was necessary to give the union strength to "take on" such industrial giants as Jersey Standard and Du Pont.

He and Knight spoke of an all-out organizing drive to achieve that end, but so far the drive has not materialized.

The chief roadblock to the "big union" idea apparently is that wages and working conditions are generally good throughout the industry, leaving the organizers with few talking points. Too, proponents of the smaller, independent unions say their members have a bigger hand in shaping their union's demands to meet their specific needs. Some are wary of being "swallowed up" by a big international union which, they fear, would dictate to them from afar.

Progress of the new IPCW will be watched closely, both by the other unions and by the companies, to see if any new trend is developing. Should IPCW gain momentum, it might signal increased merger activity by other unions.

Israel Joins Roster of Oil Producers

- **Jointly owned U. S.-Israeli company finds oil in "commercial quantities" 6 mi. from Arab-held Gaza strip.**
- **The area doesn't rank with the Persian Gulf in its oil possibilities; the geology simply isn't that good.**
- **Nevertheless, the discovery could be of major importance to Israel's hard-pressed economy.**

A new oil producing state was born last week: Israel. It is still too early, of course, to tell how large the new strike will turn out to be. But oil described as "good quality and in commercial quantities" was brought in Sept. 22 at a depth of 4,906 ft. The wildcat is located at Huleiqat, 6 mi. northeast of the border of the Egyptian-held Gaza strip, and 30 mi. south of Tel Aviv. Pressure and gravity (reportedly 30.5 API) are now being tested.

Meir Sherman, Israel's Economic Minister in the U. S., credits American capital and know-how with a major role in Israel's first oil strike. It was made by Lapidot-Israel Petroleum Co., Ltd., which is jointly owned by U. S. and Israeli capital. It is affiliated with AMPAL, American-Israel Corp., New York, through American-Israel Petroleum Co. The company is working cooperatively in several areas of Israel with Israel Oil Prospectors Corp., Ltd., which is owned jointly by U. S., Israeli, and Swiss interests.

Israel's oil potentialities remain to be fully assayed. The region, however, should not be confused with the fabulous oil-producing lands of the Persian Gulf.

Israel, together with northeastern Egypt and Lebanon, comprise one geological area, which is noted for its absence of deep and continuous sediments. This does not mean that the presence of oil fields is unlikely, nor that numerous oil deposits may not exist. On the contrary, the adjoining Sinai and Gulf of Suez areas, of northeastern Egypt have been the scene recently of several oil strikes, some of them quite interesting (PW—Sep.23'55,p29). But the absence of deep and continuous sediments, and the existence only of broken surviving structures, necessarily limit the size of the oil possibilities of that whole region.

Geologically, this area is quite different from the great Persian Gulf sedimentary area, where the folding and faulting of the earth's crust has been such as to produce large oil-reservoir structures. It is here that the fabulous multibillion-barrel oil fields commonly associated with the Middle East are found.

Israel now becomes the third country on the Eastern Mediterranean where the existence of oil has been proved. Egypt's Sinai area has had a low oil production rate (38,000 b/d) for some years. Turkey has also had a tiny output (1,100 b/d). No oil has been found so far in either Lebanon or Syria, but interest in these two areas recently has increased. In fact, drilling is slated to start in Syria this winter (page 22).

This whole eastern Mediterranean, however, is only now beginning to receive full-scale exploratory attention. Interest has been spurred greatly in both Egypt and Turkey recently due to opening up of both countries to foreign oil capital and issuance of revised, more liberal oil regulations.

Major exploratory effort in Israel is also relatively new. Wildcatting got under way generally only in 1953, following the issuance of new oil and mining regulations in 1952.

Prior to the creation of the new state of Israel, the only exploration in that area—then the Palestine Mandate—was undertaken by the internationally owned Iraq Petroleum Co.

Interestingly, the new Israel oil strike was made by drilling deeper in the same wildcat location that was chosen by Iraq Petroleum Co. as the most likely spot in that country. Lapidot-Israel Petroleum Co. rigged up its Ideco 711 rig on this well, which was found to be in excellent condition and properly plugged.

Geophysical work in the region was done by IPC in the 1930s. The company took out 29 exploratory licenses in the region under the terms of the drilling regulations issued by the Palestine Mandate in 1939. Work was interrupted during the war, but started again in 1946 at the Huleiqat site. The test well was spudded in September, 1947, and taken to 3,465 ft. by Feb. 7, 1948. The increasing anarchy of the countryside caused by the Arab-Jewish hostilities forced closure of the IPC drilling and withdrawal of personnel. When the new state of Israel was proclaimed in May, 1948, it refused to revalidate IPC's exploration licenses, and all work was abandoned.

IPC had also selected a second drilling site at Kurnub, 50 mi. southeast of Gaza. Roads were built, water supply drilled, and a camp constructed, but conditions prevailing by the spring of 1948 compelled abandonment of that enterprise, too, before the test well could be spudded in.

Discovery of commercial quantities of oil would be of major importance to Israel's hard-pressed economy.

Israel has been barred since 1948 from receiving oil from any of the Middle East Arab states. It has been forced to import crude from the Western Hemisphere, mostly from Venezuela. These imports are a major cost for the country, accounting for nearly $36-million annually.

The country, however, is fortunate in having, at Haifa, a large refinery ready to process any oil found domestically. The 86,000 b/d plant belongs to the Consolidated Refineries, Ltd., owned jointly by two of the Iraq Petroleum Co. owners—Shell and B.P. A third, Socony Mobil, has a processing arrangement with it.

This refinery was opened at the end of 1939 to process Iraq crude oil shipped by IPC pipelines from the Kirkuk field to Tripoli and Haifa. The plant was expanded to its present capacity during the war, but further expansion plans were suspended when Arab-Israel hostilities barred further shipment of Iraq crude through the Haifa line. Since then, the plant has been operating at only about one-fourth its capacity, or about 20,000 b/d, to meet Israel's own small (but rapidly rising) oil needs.

In the past, distribution of refined products in this market was handled jointly by Shell and Socony. In February, 1953, however, after three years of negotiation with the state of Israel, a settlement of the position of Consolidated Refineries, Ltd., was reached. This pact provided that a portion of the Haifa plant's output

was to be reserved by Shell and Socony for distribution by the state-owned Israel Fuel Corp.

Currently eight companies hold prospecting licenses in Israel. They cover 2.7-million acres, or one-half the country's total land area. All eight are actively engaged in drilling.

Besides the Huleiqat well, Lapidot-Israel's fifth wildcat, the company is drilling below 3,000 ft. at Massada, near the Dead Sea, after encountering some asphalt showing at shallow depths. A promising structure has been pinpointed in the Jebel Quarn location, also near the Dead Sea, and drilling will begin after an access road is built.

Israel-American Oil Corp., formed by Husky Oil Co., of Cody, Wyo., and the New York investment firm of Bear Stearns & Co., recently acquired a 25% interest in a Gan Yavne license from Nadel & Gussman, Tulsa, and Palestine Economic Corp., New York. Drilling has been resumed on the Gan Yavne license after a gas blowout last June at 3,000 ft. The company also had a gas show in a wildcat near Petah Tikva, north of Tel Aviv, where a probably-non-commercial low-pressure gas reserve area was indicated.

Also active are Israel-Mediterranean Petroleum Co. and Pan-Israel Oil Co., Inc., of Panama, both affiliates of William F. Buckley and Pantepec Oil Co. Operations are handled by Tri-Continent Drilling Co., of Houston, a Pantepec subsidiary. Currently the group is drilling below 6,600 ft. near Kurnub in the Negev after a gas show at 790 ft. Tri-Continent abandoned a dry hole at 8,000 ft. at Kfar Menachem, 17 mi. southwest of Jerusalem, and is planning to spud a new well in the Haifa area soon.

Israel Continental Oil Co., Ltd., of Calgary, Canada, will start drilling shortly on its Kurdani license area north of Haifa. It recently abandoned a deep test at 9,500 ft. at Zichron Jacob, on Mt. Carmel.

Oil Money Gets Around in Texas

The importance of Texas oil dollars to the state's economy, and the widespread circulation those dollars get, is being stressed by the Texas Mid-Continent Oil & Gas Assn.

The work of the association is an example of the efforts of many industry and industry-related organizations to acquaint the public better with the oil industry during Oil Progress Week Oct. 9-15.

The purpose of the "Texas Oil Dollars" leaflets prepared by the association is to show where those dollars go —and to dispel any notion that oil money only flows from the well to the pockets of a few Big-Rich.

The leaflet folds to the size of a dollar bill. On the front, in green, is the Texas oil "dollar" (above). Inside are some illustrated examples of what Texas oil revenue means to the citizens of the state:

- About 45% of state funds for public schools comes from taxes paid by oil and gas producers.
- Annual royalty checks of some $450-million are a boon to Texas farmers, ranchers, other landowners.
- Between $75-million and $100-million is paid annually to land owners for lease rentals.
- One of the biggest payrolls in Texas, about $1-billion a year, goes to oil and gas employees.

The association has also distributed to Texas editors a series of articles on the Texas petroleum industry. These articles tell the story of Texas oil production and refining—the risks, the costs, and the problems involved—and explain in layman's language such things as the oil depletion allowance, "tidelands oil," and the manner in which oil plays a big role in the life of all Texans.

Leonard Moves To Integrate

The planned merger of Roosevelt Oil & Refining Corp. and Mid-West Refineries, Inc., into Leonard Refineries, Inc., will represent a big step toward a fully integrated oil company.

Stockholders of Roosevelt and Mid-West meet today to vote on the merger, which involves transferring the assets of the two companies to Leonard in exchange for Leonard securities. Leonard stockholders will take their vote Oct. 7.

Total assets of the three companies at the end of 1954 were $23-million, consisting of $8.1-million for Roosevelt, $7.7-million for Mid-West, and $7.2-million for Leonard. Roosevelt's sales last year were $24-million, Mid-West's $13-million, and Leonard's $14-million.

Leonard, after the merger, will become a producer, a gatherer, and a transporter of crude oil in addition to its present refining and marketing operations.

Mid-West Refineries owns Michigan-Ohio Pipeline Corp., which operates a common-carrier crude line from Toledo to central Michigan. Through connections at Toledo, this line moves Southwest, Mid-Continent, and Wyoming crudes to several Michigan refineries.

Roosevelt is the largest gatherer and purchaser of Michigan crude, gathering approximately 37% of the state's output through its more than 500 mi. of gathering lines in the state. The company is also a small producer in Michigan, and has undeveloped leases in several other states.

The merger, however, will bring little physical change in the operations of the three companies. The three Michigan refineries (Leonard, Alma, 8,500 b/d; Mid-West, Alma, 10,000 b/d; Roosevelt, Mt. Pleasant, 7,500 b/d) will continue to supply their individual retail outlets. Leonard will continue to be solely a branded seller through Michigan jobber-dealers that operate about 300 service stations. The products from the Roosevelt and Mid-West refineries will continue to be sold primarily as unbranded product to jobber-dealers in Michigan. The small portion of branded products from these two refineries will also continue on the market.

The merger, however, will strengthen the crude oil position of the surviving company. And there are rumors that Leonard plans further expansion. But company officials are keeping silent—for the moment at least.

What's New / IN THE INDUSTRY

Arthur H. Elliot

'Little Consortium' Gets Overseas Expert

The nine "independent" members of the Iranian oil consortium are going to be represented in that body by an industry man with broad experience in international oil.

He is Arthur H. Elliot, recently retired general representative in London for Standard Vacuum Oil Co. (jointly owned Far Eastern affiliate of Jersey Standard and Socony Mobil). Elliot carries the title of executive vice-president and general manager of Iricon Agency, Ltd.

Last May the nine U.S. oil companies acquired a 5% interest in the consortium set aside for independents. This "little consortium" then set up Iricon Agency to meet the requirements that they act as a unit in consortium affairs, a director representing them on the consortium board.

Elliot is that director. He will serve on the board of Iranian Oil Participants, Ltd., the consortium company, with headquarters in London. He also will be a director of Iranian Oil Services, Ltd., which handles servicing and other matters for consortium operations in Iran. He will have no responsibilities in marketing or transportation, however, as these are handled individually by the nine companies.

Elliot is a veteran of 38 years' experience in foreign oil operations, including 24 in the Far East and 12 in London. He began his overseas career in 1916, with Standard Vacuum in Indonesia, and served in various capacities in the Far East until 1940. During World War II he was Stanvac's European representative. After a short tour of duty in New York, he returned to London as the company's general representative. He returned from Stanvac Mar. 1, 1955.

Texaco Loses 34 Wells

An invalid lease has cost The Texas Co. 34 producing oil wells on 960 acres in Duval County, Tex. The state is going to sell the mineral rights to the land—including the wells—on Oct. 23.

The sale is the latest chapter in a long mixup over oil and gas interests owned by the state in its public lands. Texaco had got mineral rights to the land in Duval in 1922, from Duval Ranch Co., after the state legislature had passed an act which apparently awarded fifteen-sixteenths of oil and gas rights to surface owners who had purchased public lands from the state.

Court decisions changed this interpretation, however, and after many years of legal bickering, the state sued Texaco in 1951 to establish its claim that the ranch did not control the mineral rights, but was only an agent for the state. The suit went to the state's supreme court, which this year finally handed down a ruling in favor of the state.

As a result, Texaco must give up the wells it has developed, and must pay the state $1.3-million, plus interest, for past production. In turn, Texaco will be allowed to recover all expenses, including exploration and dry hole costs, and it will get $9,000 from the ranch for breach of its mineral title warranty. The ranch was permitted to keep one-sixteenth of the oil payments as payment for damages to surface and for services as an agent.

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Mandan Shutdown Slated

With its Whiting refinery still feeling the effects of the fire that hit a month ago (PW—Sep.2'55,p11), Standard Oil Co. (Ind.) will shut down its 30,000 b/d Mandan (N. D.) refinery for a semiannual inspection.

One result of the shutdown: The North Dakota Industrial Commission has reduced the state's October crude allowable to 21,835 b/d; this is a cut of 12,795 b/d from the September level. The refinery is the state's major crude buyer.

Company officials said the two-week shutdown at Mandan was taken into account when plans were first made for meeting products needs resulting from the Whiting fire. These plans "have been carried to the point that, through drawing on other refineries, some buying, and getting Whiting back on stream, all customers will be taken care of." Operations at Whiting late last week were running 100,000 b/d, nearly 50% of capacity. By Oct. 15 crude runs are expected to reach 150,000 b/d.

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Happy Birthday

Next week marks the 25th anniversary of what has been called one of the three most significant dates in U.S. petroleum history—the discovery of the East Texas field. The others are the Aug. 27, 1859, discovery of the Oil Creek (Pa.) field, and the Jan. 10, 1901, blow-in of the famous Spindletop field.

The East Texas discovery, on Oct. 3, 1930, led to the development within a year's time of a field that was spouting more than a million barrels a day —a rate so rapid it helped drive prices down to 10¢ a bbl. and almost ruined the field. A direct outgrowth of this emergency was the development of orderly conservation practices in the state, for the first time anywhere.

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The world's longest undersea pipeline is expected to complete its initial flow operation this weekend. Owned by the MCN Group (Magnolia Petroleum Co., Continental Oil Co., and Newmont Oil Co.), the 47-mi. system will move both natural gas and crude oil from Block 126 field in the Gulf of Mexico to Burns Terminal, St. Mary Parish, La.

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J. Ed Warren and Sam M. Gladney will receive the 1955 distinguished service awards of the Texas Mid-Continent Oil & Gas Assn. at the group's annual meeting, which is to be held in Dallas, Oct. 3-4.

Warren is a partner in the oil producing firm of King, Warren & Dye, of Midland, Tex., and is a vice-president of the First National City Bank of New York. He is a former deputy administrator of the Petroleum Administration for Defense.

Gladney, who joined Sun Oil Co. in 1919 as a clerk in Dallas, has been general manager of the company's Southwest production division since 1951.

Take Some Wraps off Turbodrill

Some of the wraps were removed this week from Standard Oil Co. of California's 30-year effort to develop a successful turbodrill.

Speaking this week before a New Orleans meeting of the American Society of Mechanical Engineers, W. R. Postlewaite, California Standard mechanical engineer, revealed some of his company's findings in long experimentation with the tool.

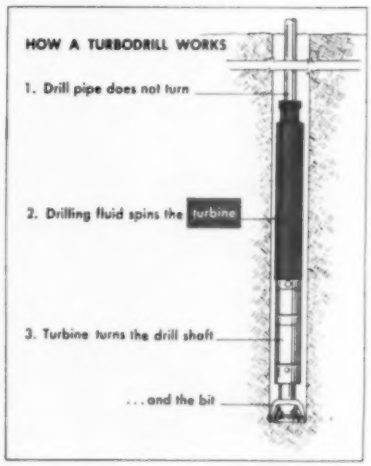
Among the conclusions: The turbodrill's performance compares favorably with that of conventional rotary drilling in shallow projects; but a major fault is the tendency toward crooked holes.

In tests prior to 1941 in Southern California's Greeley and Midway Sunset fields, the turbodrill gave a comparably good performance down to 3,000 ft. Postlewaite suggested that a remedy to the crooked hole problem may lie in use of a heavy drill collar below the turbine.

Other details and conclusions:

- The company thinks its "multistage assembly, involving lengths up to 35 or more feet . . . is a practical and durable power unit for drilling service."
- A speed indicator has been designed to help control mud flow and bit speed at the bottom of the hole. A turbine-driven generator sets up alternating current distribution in the ground, which is picked up at the top. A calibrated gauge near the driller provides a continuous indication of bit speed on bottom.
- Standard high-speed turbines seem to wear bits excessively. A slower turbine (200-250-rpm. drilling speed) with a higher flow rate (850 to 1,150 gal. of mud per min.) should jet cuttings away from the bit more effectively, thus reducing the wear factor.
- Both the turbine-runner shaft bearings and turbine thrust bearings operate directly in the drilling fluid, requiring no seals.
- Fluted rubber sleeve bearings of the type used on marine propeller shafts and on the rotor shafts of sand dredges have replaced earlier-type bearings for the turbine-runner shaft. This eliminates whipping and permits flexible use of power and mud circulation.

California Standard believes the cost of drilling a well with a turbodrill would be $6,000 to $10,000 less than with a rotary drill, penetration rates being equal. (Postlewaite didn't mention depth in this connection; presumably he was talking about shallow wells.) Depreciation costs on drilling equipment would be $40,000 less per rig with the turbodrill.


HOW A TURBODRILL WORKS
1. Drill pipe does not turn
2. Drilling fluid spins the turbine
3. Turbine turns the drill shaft
. . . and the bit

Economies stem partly from the fact that, in turbodrilling, the pipe remains stationary, thus minimizing the wear of conventional rotation. The drilling fluid is forced down the pipe and spins a turbine just above the bit (drawing), the turbine turns the drill shaft and the bit. Thus, not only would the drill pipe last longer, but less expensive pipe and tool joints could be used. Turbodrilling would also utilize considerable power that is wasted between the prime mover and the bit in conventional rotary drilling.

Drilling Men Fear Insurance Hikes

Efforts are being made by state and federal governments to increase the already-burdensome compensation-insurance rates which plague many segments of the oil industry. And this subject was an important behind-the-scenes topic at the 15th annual meeting of the American Assn. of Oilwell Drilling Contractors this week, at Houston.

Concern was focused on the many "liberalizing" insurance amendments being pushed through various state legislatures each year, and on the still-uncertain outcome of events touched off by Labor Secretary Mitchell's avowed interest in bringing about "improvements" in workmen's compensation acts. A Labor Dept. committee has already produced a rough draft of a "model act" as a preliminary to obtaining suggestions from the Assn. of Workmen's Compensation Administrators and other agencies.

"This is a matter which would be strongly resisted," Joseph M. Shelton, Dallas attorney and insurance consultant for AAODC, declared when Mitchell's ideas were first revealed. "Not only for the content of the suggestions, but as a complete invasion of the principle of state's rights." This week he added another prediction when he warned the contractors that the so-called model act "will contain some of the most liberal provisions ever suggested, and certainly would have a tremendous impact upon the cost of such insurance coverage."

The drilling industry, most hazardous major segment of the oil business, already attributes 5½% of its direct costs to insurance, and the end is not in sight.

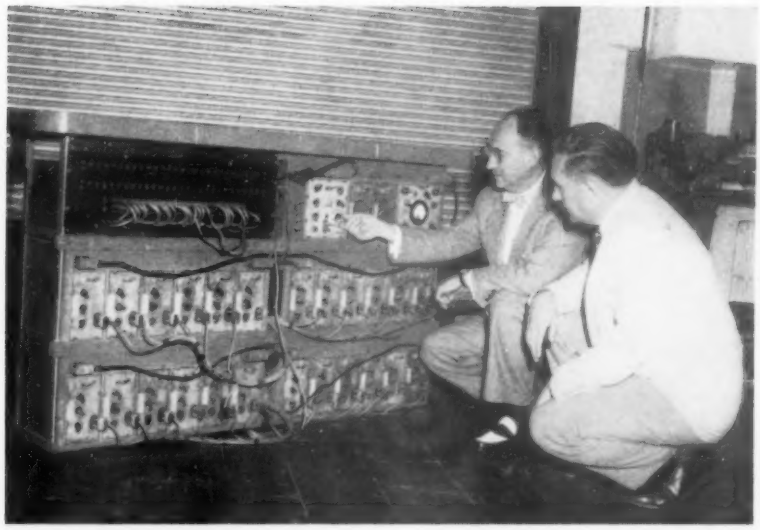
"Practically every session of a state legislature receives several bills affecting this field," the AAODC consultant declared. Paramount among the liberalizing proposals he cited were (1) comparative-negligence bills, to eliminate contributory negligence as a defense in common law actions; and (2) bills to allow majority rather than unanimous verdicts by juries.

Along with guarding against harmful legislation, drilling contractors are being urged to choose their insurance programs wisely and administer them carefully on a day-to-day basis as a means of holding down costs.

Factors in choosing an insurance program include the legal and corporate structure of the business, the areas in which the work is performed, and special items of equipment.

Day-to-day factors which strongly bear on insurance costs in the drilling industry are its numerous hazards, fluctuating labor demands and floating manpower pools, high wages, isolated rig locations (which make medical attention difficult and complicate claims procedures), public acceptance of higher personal-injury claims, and the method of promulgating insurance rates.

Shelton told the contractors: "There has never been a loss paid by an insurance company. You pay all of the losses. You also pay a service charge for the expenses of operation and profit of the insurance company. Whether your insurance costs you more or less than the average is dependent entirely upon your own handling of your insurance program."



TORNADO PROTECTION with this equipment is discussed by Dr. H. L. Jones (right), Oklahoma Institute of Technology, and E. M. McNatt, Carter Oil Co. It's . . .

A New Use for the Seismograph

Experiments under way at Oklahoma A. & M. College could create a brand-new use for petroleum seismograph equipment: to help track down clouds that are breeding devastating tornadoes.

The study which has been going on for some time at A. & M., was brought before the public last week when Carter Oil Co., of Tulsa, donated some seismograph equipment to the Stillwater school.

Twenty-six amplifiers, with associated control and testing apparatus, were presented to A. & M. by E. M. McNatt, assistant manager of Carter's geophysical department.

Dr. H. L. Jones, of Oklahoma Institute of Technology, A. & M.'s electrical-engineering division, plans to incorporate seismograph equipment into a new device he is making, which he thinks will be more effective in tracking down tornadoes than radar alone.

Jones has been working on the problem of tornado prediction since 1946. Most of his work has been done with electrical equipment and meteorological radar. By incorporating the seismograph equipment, he hopes soon to be able to predict not just a general "squall line" where tornadoes could occur, but to pinpoint tornadic clouds.

Tornadoes are not taken lightly in the oil country. They occur over a five- or six-month period each year, striking hardest in Kansas, Oklahoma, and Texas.

Because tornadic lightning differs from ordinary thunder-storm lightning, seismograph equipment can help to identify a tornadic cloud. Tests have shown that the tornado can be identified by the distinctive pattern of electrical discharges, or "sferics" (atmospheric radio waves), which show up on an oscilloscope.

When lightning strikes within a 130-mi radius of A. & M., the sferics are first picked up by electronic detection devices outside the buildings. These waves of electricity are then passed onto the oscilloscope screen, where they are recorded by an automatic camera, for future analysis and study.

The vital tracking step in the whole operation is put into action to plot the storm's course, once it has been identified. This is done by two oscilloscopes, one for direction-finding and the other for detection of the characteristic of the tornado's sferic. Once the direction of the expected twister is determined, the particular storm cloud responsible can be located and tracked by means of special meteorological radar.

A big demand for certain seismograph components is likely if the experiments prove successful. Some envision a seismograph-type tornadic-warning setup in virtually every sizeable weather station in the tornado belt.

The U.S. Signal Corps has been donating $20,000 a year to A. & M. to carry on the tornado studies.

Jones plans to have his new seismic-assisted tornado identification equipment ready for operation in 1956.

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What's New / IN PRODUCTION

Drilling Highlights

TEXAS PANHANDLE — Woodson Oil Co.'s Perry Unit A1, 1½ mi. southeast of Perrytown, Ochiltree County, is a discovery from a formation believed to be the Morrow sand. On drillstem test at 7,470-503 ft., using ⅝-in. choke top and bottom, tool open 2 hr., it surfaced gas in 4 min. and oil in 25 min. and flowed at the rate of 56 bbl. of 45-gravity crude for 1 hr. Gas was estimated at 500,000 cu. ft. daily.

ROCKY MOUNTAINS — Sinclair Oil & Gas Co. reports a major gas find 25 mi. north of Cisco, in eastern Utah's Grand County, near the Colorado border. On test at 4,178-208 ft. through ¼-in. choke the flow was at a rate of 2,630,000 cu. ft. daily from the Dakota formation. Flow from the Entrada formation in test at 4,967-5,017 ft. was at the rate of 6,015,000 cu. ft. daily. Sinclair will drill three additional wells on its 9,000-acre lease.

GEORGIA—The $100,000 reward offered for the state's first commercially producing oil well was still standing last week. A Coffee County test was abandoned at 4,130 ft. after encountering oil shows at 2,000 ft. The encouragement was considered sufficient, however, to justify other attempts in the area.

NORTH DAKOTA—Sohio Petroleum Corp. has a discovery at Ritter 1, Renville County, 55 mi. northwest of Minot. On 8-hr. test the well yielded an average of 22 bbl. per hr.

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Texas Supervision Tightens

Closer supervision over state mineral leases and offshore geophysical exploration have been promised a Texas legislative investigation committee by Land Commissioner J. Earl Rudder.

The legislature directed the committee particularly to look into past leasing of oil lands by the Texas School Land Board. This order came in the aftermath of scandals concerning the Veteran Land Loan program administered by Bascom Giles, who was succeeded by Rudder.

Rudder said a check on the performance of leaseholders will be possible through funds raised by a new inspection fee of 1% of the bonus for each tract leased. About $120,000 was collected by this new law at the Sept. 6 lease sale.

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Offshore Success Rate Up

The past 13 months have been the busiest and most successful in the history of offshore operations.

Of the 841 offshore tests to date, 340 were drilled during that period. And 75% of them were successful, according to George B. Parks, general manager of production and drilling operations for Kerr-McGee Oil Industries, Inc., Oklahoma City.

Discussing offshore economics at the annual meeting of the Louisiana-Arkansas Division, Mid-Continent Oil & Gas Assn., Parks pointed out that the successful experience explains why offshore ventures attract so many operators despite high leasing and drilling costs.

Parks said that offshore activity during the past 13 months represents 44% of all operations since the oil search went to sea. He cited these figures: 186 of the 450 successful oil wells and 62 of the 122 successful gas wells were completed, and 18 of the 37 oil fields and 17 of the 31 gas fields were discovered during that period.

The success rate during the entire period of offshore development is 68%. At present, offshore oil and condensate production represents 1% of national production.

Parks declared that "large-scale activity, considered necessary to bring about a reduction in operating costs, is getting under way." Inhibiting influences, he said, are a 19% reduction in offshore allowables at a time when daily production of 1,500 b/d to 4,000 b/d per field is needed to offset production costs; a shortage of offshore drilling units, and the fact that drilling costs are mounting as operators move out into deeper water.

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Gas Revenues Rise

Revenue from the Texas gas-production tax increased more than $13.5-million during the fiscal year just ended to a total of $38.7-million, State Comptroller Robert S. Calvert reported.

The increase was largely the result of a rate hike from 5.7% of market value to 9% which was voted by a special session of the legislature in 1954. (This tax dropped to 8% last Sept. 1 and will go down again next September.)

Oil production taxes netted $127.8-million, an increase of $1.5-million over the 1954 fiscal year.

The motor fuel tax brought in $135.7-million before refunds to non-road users, compared with $128.9-million the previous year.

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A new ruling by the Colorado Oil & Gas Conservation Commission that prohibits flaring of more than 30,000 cu. ft. of gas daily from each Rangely well may lead to sale of the gas to transmission firms.

Unlike an earlier commission order, which was upset by the State Supreme Court, the new rule does not specify that gas must be returned to the reservoir. Thus, operators interpret the order to mean that sales will be permitted to Pacific Northwest Pipe Line Corp., which is building a $162-million line through the area.

•

Lamar Hunt, of Dallas, has agreed to pay the Mobile County-City school board a bonus of $115,000, plus 50% royalty, for a 637-acre lease 4 mi. southwest of the Citronelle discovery in Mobile County, Alabama. Humble Oil & Refining Co. offered a $227,340 bonus but only 12½% royalty. Hunt agreed to begin drilling in six months or pay a $50,000 penalty and surrender the lease.

•

A uniform method of reporting gas production in East Texas fields has been prescribed by the Texas Railroad Commission. The order, effective Oct. 1, applies to Bethany, Carthage, South Hallsville, North Lansing, Waskom, and Willow Springs fields in Panola, Harrison, Rusk, and Gregg counties. All gas produced must be accounted for under the new order.

•

Magnolia Petroleum Co.'s West Ranch 417-A, Jackson County, deepest ever drilled in Texas, has a fishing job at 19,060 ft.

After failing to take a cut of the drill stem at 16,896 ft., the operator circulated and obtained gas- and water-cut mud for two hours. The well has a long shale section, but is now bottomed in sand which is believed to be permeable because circulation was lost at total depth. The gas is believed to be coming from the sand, but the shale may be the source.

PETROLEUM COMMENTS / By W. M. Jablonski

Independents' Outlook Improving

The fates are beginning to look more kindly on the sole, all-independent American oil venture in the Persian Gulf.

And, one might add, it's about time. For until quite recently, almost everything seemed stacked against it.

* * * *

It has been nine years since the group of U. S. producers and refiners first banded together in American Independent Oil Co. (Aminoil) to try their luck in the oil-rich Persian Gulf—then the hunting ground of only the world's biggest oil corporations. Members are: J. S. Abercrombie, Ashland Oil & Refining, Ralph K. Davies, Deep Rock, Globe Oil & Refining, Hancock Oil, Lario Oil & Gas, Phillips Petroleum, Signal, and Sunray.

The group set up shop in 1947, securing a 50% undivided concession in the 2,500 sq. mi. Neutral Zone between Kuwait and Saudi Arabia. The other half went to Pacific Western Oil Corp.

But for some time, the enterprise seemed jinxed. It looked almost like a geological conspiracy.

To its north, the concession nearly touched the famed Burgan field, the world's largest oil pool, in Kuwait—a tiny sheikhdom with proved reserves currently listed at 30-billion bbl. (or more than the entire U. S.). Not very far to the south lay the prolific oil fields of Saudi Arabia.

Yet for the next five years the independents knew nothing but disappointment. In a fair breeze, their drillers could almost smell Burgan's wells. But one after another, their wells proved dry. Five in a row, at an estimated cost of nearly $30-million.

Finally, Aminoil did strike it in early 1953. Their new Wafra field was not "another Burgan," by any means. It was quite small, by Persian Gulf standards. But its estimated minimum reserve of 300-million bbl. was enough to get started on.

* * * *

Even then, initial exuberance was quickly dampened. It soon began to look as if the independents had found the wrong grade of oil at the wrong time.

Wafra crude turned out to be the heaviest (24 degree-gravity) in the Persian Gulf. And by the time the first pipeline outlet was completed, and the new oil ready to be shipped in February, 1954, market conditions were against it. World crude supplies had eased greatly. Heavy-fuel markets were glutted.

The first year, Aminoil had real rough going. Except for a small contract with a Houston refiner (Eastern States) and a few sales to Japan, it had difficulty interesting anyone in Wafra crude.

Recently, however, the picture has started to change, due to the worldwide heavy fuel oil shortage.

Refiners, too, have suddenly awakened to a realization that the current disproportionately rapid rise in heavy fuel oil demand—as against gasoline and light oils—is likely to remain a long-term trend in Europe and other foreign areas. The answer, some Euporean plants are deciding, is to switch to lower-priced, heavier crudes, with their higher heavy fuel yields.

And Wafra crude—with its yield of only about 17% gasoline but 60% to 70% of residuum—seems to fit this European demand pattern neatly (as, of course, other heavier crudes do, too). Its gasoline is also reportedly the highest-octane of any Middle East oil.

The net result is that Wafra crude is now getting to be a far more marketable item. Aminoil officials report they are able to get a much better price than a year ago, and that they've sold their entire production through the first quarter of 1956. Beyond that, the bulk of the output is covered by several longer-term contracts, and others are being negotiated.

All sales, except for the one small Houston contract, are to the Eastern Hemisphere: Italy, France, Germany, and Japan, at present.

The shoe is now on the other foot, in fact. Aminoil has more potential business in sight at the moment than it has Wafra crude. The field's 22,000 b/d output was raised this summer to about 30,000 b/d (of which half belongs to Aminoil and half to Pacific Western). This appears close to its current maximum efficient rate.

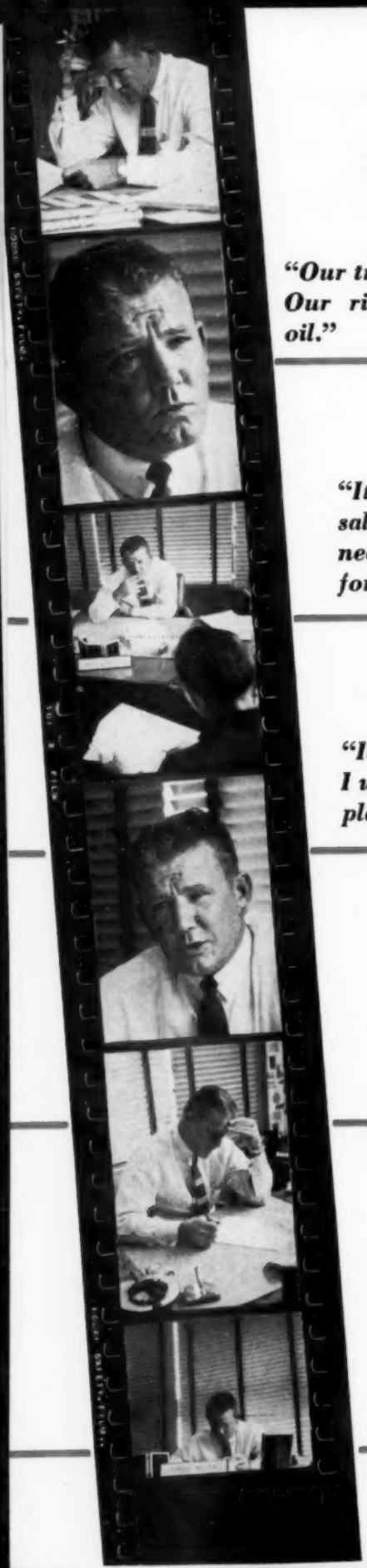
However, Aminoil is now re-examining a possible extension to the field. Next month, too, drilling is slated to start to test a new oil horizon discovered in the deeper Ratawi limestone.

* * * *

The Neutral Zone still has a long way to go, of course, before it can be described as a major Middle East operation. But it is significant as still the only purely independent U. S. oil venture in the Persian Gulf. Other so-called "independents" in the Middle East are larger U. S. corporations, and have generally confined their activities to the Mediterranean area (except for Cities Service Co. in southern Arabia).

In all, things have improved for Aminoil to the point where it began to show a book profit this summer for the first time.

At the moment, the company is involved in a dispute regarding internal voting matters. But if members straighten out their internal problems successfully, it looks as if this independent oil enterprise in the Middle East is finally getting its feet on solid ground.



DEPT/Management

J. A. McRae — He Shows Wh

President, McRae Oil & Gas Corp.

"Our trouble was too much success. Our rigs were finding too much oil."

"It's necessary to pay high salaries to have plenty of engineers and geologists looking for the right places to drill."

"It was one of those things — I was the right guy at the right place at the right time."

"We think there is a tremendous potential in West Texas for our company."

"Our development and exploratory program will be strictly under budgetary control. We're going to live within our income."

Six years ago Jimmy McRae started with a small oil lease in Texas—on borrowed money. Now he heads a producing company with 150 employees, six drilling rigs, and net oil reserves of almost 10-million bbl. The company's success wasn't just luck in hitting oil. It was mostly smart management.

This week, as McRae gets his staff settled in new headquarters at Midland, Tex., he is pushing expanded operations in West Texas. He thinks there is "tremendous potential" for McRae Oil & Gas Corp. there. That's why the company bought Intercoast Petroleum Co., of Midland, this summer, and moved its own office to Midland from Denver.

Behind this new expansion in West Texas is the story of sound business practices that brought in 34 producing wells out of 43 drilled in a three-year period. The McRae company's methods are not only valid for oil field operations. They apply to the management of any independent company—in refining or marketing, as well as in producing.

First, McRae knew the business, he liked it, and set his sights high.

The son of an oil worker who followed the booms in East and West Texas, McRae worked his way through three years at Southern Methodist University as a soda jerk, with summer jobs as an oil field roughneck. During the war he joined the marines and fought all over the South Pacific.

And in 1947 he joined A. J. Hunt Contracting Co., active in storage-tank construction in West Texas oil fields, as general manager. "That," says McRae, "is where I learned a lot about administration, cost accounting, and handling of equipment."

He had a plan. "My one ambition was to get one or two drilling rigs," McRae says. "I knew that with them we could build our own company. I've never known anyone who got rich running drilling rigs at contract prices. But rigs are tools to bring people to you—people who hold leases and want wells drilled, in return for an interest in the production."

McRae got a start in 1949. He and a close friend, John Darden, formed a partnership at Midland. They had no money. So Darden borrowed $4,000 on his home for leases on a 40-acre tract in Scurry County, Tex. And the two men got a well drilled on their acreage by Esperado Mining Co.

It Takes to Build an Independent

Selling their interest for $75,000, the partners bought leases on 110,000 acres in the Williston Basin of Montana. Without cash for exploration, they sold out in the spring of 1951 to Amerada Petroleum Co. for $250,000. Then they were ready to talk about rigs.

They joined forces with John Roden, a drilling superintendent in Casper, Wyo., and bought two rigs—one for $75,000 and the other for $135,000. They contracted drilling work in the Casper area—and did very well, after weathering the first severe winter. By the spring of 1952, they were making a profit at the rate of about $60,000 a year, and were ready for the next move.

McRae recognized opportunity when it came, and acted fast. A good production buy reached the market at a price of "several million dollars." He hurried to New York and got in touch with investors interested in oil.

The deal fell through. "Another party beat me to it," says McRae.

But he didn't miss the next opportunity: the fact that one of his New York contacts introduced him to other New York investors. He persuaded them to join his company as limited partners (excluded from active operation, and with their liability limited to the amount of their investment). One of the leading partners: Robert R. Young, of the New York Central.

"It was one of those things," recalls McRae. "I was the right guy at the right place at the right time.

Twenty-four such investors put up $400,000 for a 50% interest. McRae managed their ventures aimed at developing oil production, plus a separate drilling operation with the two rigs. "We used the $400,000 to buy two more rigs," says McRae. "Then we took the income from all four rigs to try to find more production. We believed in plowing back our profits. Then, in 1953, we bought still another two rigs, giving us six rigs with a total investment of $1.7-million."

The drilling operations (centered in the Denver Basin of the Rockies) were very successful:

	Gross Drilling Income	Net Drilling Income
1952	$716,000	$158,000
1953	$1,547,000	$311,000

McRae realized the company's success depended on skilled assistants—and he was willing to pay for them. "Our administrative expense has always been out of line compared with that of other companies," he says. "But we think it's necessary to pay high salaries to have plenty of engineers and geologists looking for the right places to drill."

As the company grew, McRae carefully selected a young team. Four of the seven members of the executive committee are in their 30s, two are 41, the other is 50. And to avoid losing these men, McRae offered them stock options.

He also saw the danger in an unwieldy corporate structure, and worked to streamline it. New Eastern investors had gradually been attracted. By 1954, there were 47 limited partners, many with overlapping interests in several of the company's producing ventures. Another problem McRae foresaw was that any partner's death would mean "a multiplicity of heirs all sharing in the partner's interest."

After several corporate changes, the present McRae Oil & Gas Corp. was formed in September, 1954. Stock was issued to all the partners in return for all their assets. McRae was named president. Darden and Roden sold their interests. And the drilling company became a 100% subsidiary.

McRae tried hard to keep management's credit good—with the stockholders and with the bank. This served the company well when it faced its "biggest management decision," last fall.

"Our trouble was too much success," says McRae. "Our rigs were finding too much oil. Drilling deals obligated the company to drill two, three, or four offset wells if the exploratory well hit oil. Our income couldn't keep up with our drilling costs."

The company got backing from the U. S. National Bank of Denver, and at one time owed the bank $650,000. "They went all the way with us in keeping with good banking judgment," says McRae. "But eventually we had two ways to go.

"One way was to get more bank financing to finish our offset-well program, and then let our production pay off the loans. The other way was to issue new stock.

"With new bank loans, we would have had to stop all expansion for three years.

"Instead, we offered to each stockholder the right to buy his proportionate part of 200,000 shares of stock at $3 a share. They took it all, giving us $600,000 new capital."

And in May of this year, the company raised another $1.3-million by selling 400,000 shares of common stock to the public.

This meant some dilution of the interest of the original stockholders. However, McRae says, "We felt that by being able to go ahead with our plans for a larger company, we would more than offset the dilution."

With the new money, McRae Oil & Gas was able to pay off all outstanding loans and bills.

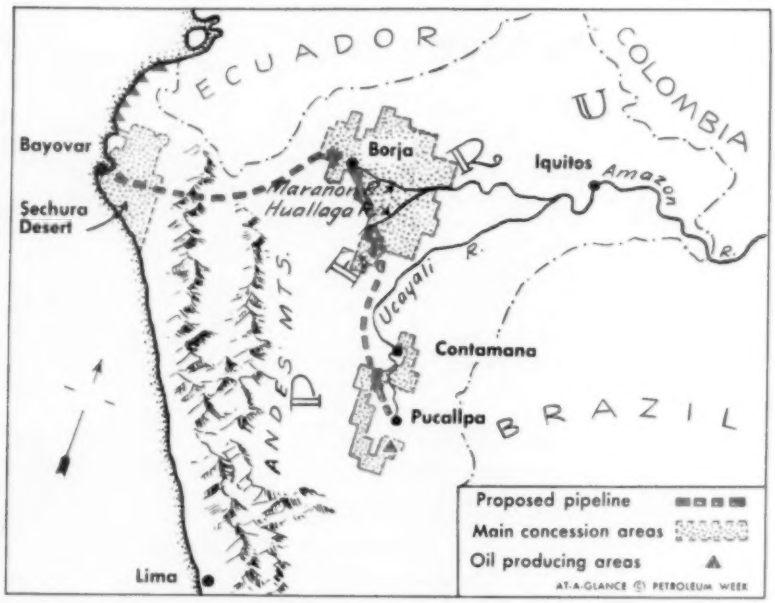
At the same time, 312,000 shares were also sold to the public by stockholders themselves (the first return any of the partners got on their investment).

In managing the company, McRae works hard at being a fair-minded, rounded executive. Even today, he skips lunch on busy days, having his secretary bring him a coke and a ham sandwich. He reads closely the financial news in the daily papers. On his desk are such books as *Management of Expanding Enterprises*, and *What Makes an Executive?* He calls men by their first names, and adds, "Mine's Jimmy—I hope you'll call me Jimmy." He thinks out everything before making a move, chooses his words carefully, makes no snap decisions.

He has never let up on the pressure for expansion. And he always keeps planning ahead. The purchase of Intercoast Petroleum this year added 68 wells, net production of 500 b/d, and gross income of $300,000 a year. The price: $250,000 cash, 125,000 shares of McRae common stock, and liability for a $350,000 production loan against Intercoast.

Now, McRae says, "We're in a position to handle several more good production deals." The company also plans 10 to 20 development wells in the immediate future, plus the expanded exploration in West Texas. It is keeping offices in Casper, Wyo., and expects to be more active than ever in the Rockies. And McRae also talks of developing small uranium properties in Colorado and Arizona.

But whether it's oil or uranium, he isn't going to let the company get over-extended. "Our development and exploratory program will be strictly under budgetary control," he concludes. "We're going to live within our income."



New area packed as . . .

U. S. Interests Grow in Peru

Peru's Oriente is beginning to look like another Cuba. U. S. groups are leading the foreign and Peruvian companies that are packing concession areas in the northeastern part of the country in an intensive search for new oil sources. The striking thing about the eastward movement is that at least a dozen companies will sink millions of dollars into exploring an area in which no oil has been found.

Exploration costs are tremendous because Peru's northeast is a remote and densely jungled area of the Amazon River basin, cut off from the Pacific coast by the Andes mountain range. There is only one highway leading from Lima, on the coast, to Pucallpa, in the interior. The navigable tributaries of the Amazon are the only means of transport east of the Andes.

Current interest centers largely around the basin of the Maranon River, the Peruvian extension of the Amazon, where there is now a virtually solid block of concessions. Some holdings also spread along the Ucayali River, major tributary of the Maranon, running northward from the Agua Caliente field in central Peru. This field, operated by Ganso Azul, a subsidiary of Texas Gulf Producing Co., is the only existing oil field east of the Andes.

U. S., Peruvian, and Canadian companies now hold, or have applied for, Oriente concessions totaling more than 27.1-million acres, with new applications coming along regularly. Nine companies have already approached or reached the 2.4-million-acre limit on concessions. An amendment to Peru's petroleum law now in the works, however, will permit doubling of the limitation (PW—Sep.2 '55,p28), and some Oriente concession holders are expected to apply for the further acreage.

Companies actively interested hold, or have applied for, the following concession acreage in the Oriente:

Texas Petroleum Co. (Texas Co.), 2,469,970 acres; International Petroleum Co. (Jersey Standard), 2,470,000; Socony-Vacuum Oil Development Co. of Peru, 2,469,379; Peruvian Pacific Petroleum Co. (Cities Service), 2,469,998; Richmond Oil Co. (Standard Oil of California), 2,469,978; Peruvian Gulf Oil Co., 2,468,585; Petroleo Sullana Ltda. (owned 40% by Union Oil Co. of California, 60% by Peruvian interests), 2,429,363; Corp. Le-Tourneau del Peru Inc. (subsidiary of the U. S. equipment manufacturer), 285,026; Cerro de Pasco Corp. (U. S.-owned mining company), 2,470,000; Cia Peruana de Petroleo "El Oriente" S. A. (Peruvian, in joint agreement with three German companies), 2,189,208; Peruvian Oils & Minerals Ltd. (Canadian), 1,867,127; Cia Peruana de Petroleo Ganso Azul Ltda. and Ganso Azul Cia de Petroleo (owned 80% by Texas Gulf Producing Co., of Houston, and 10% each by Bay Refining Co. and Kendall Oil Co.), 860,200; Trans-Western de Peru S. A. (controlled by a U. S. independent, Western Oilfields, Inc., of Denver, in conjunction with Peruvian interests), 1,490,828.

Main reason why the tide of oil interest has swept over the Andes into the high-risk areas of the Oriente is that more accessible regions of Peru have been disappointing. U. S. and other companies looking for new sources of oil in Latin America have been particularly active in Peru since 1952. At that time a new oil law was put into effect to push the oil search.

Peru's consumption of petroleum products has been rising at an annual rate of about 10%. Demand this year is expected to hit about 38,000 b/d, as compared with 34,000 b/d last year. Since oil operators are required to meet domestic requirements before they can export, growth in Peruvian demand means a corresponding cut in crude oil exports. Oil exports have been an important bulwark of Peru's economy.

Virtually all of Peru's current oil production comes from the northwestern tip of the country. Fields operated by International Petroleum and Lobitos Oilfields (British) supply most of the country's oil needs and all of the exports. Of total 1954 production of 47,018 b/d, domestic requirements took 34,000 b/d. International Petroleum produced 31,426 b/d, Lobitos 13,130 b/d, and Empresa Petrolera Fiscal (national oil entity) 1,609 b/d, all in the northwest coastal region. In addition, the Agua Caliente field east of the Andes (jointly owned by Ganso Azul and Peruvian Oils & Minerals) produced 853 b/d.

Although production in the northwestern coastal area has increased in the past two years, no new fields have been found to keep pace with rising domestic demand and to maintain exports.

The oil search turned next to the Sechura Desert, immediately south of the International Petroleum fields, on the coast. But so far results have been negative. All 13 wildcats completed last year were dry—and interest in the Oriente gathered speed.

Geologists consider the Oriente as having all the earmarks of potential oil territory. Production of the Ganso Azul field, though limited by the size of the market east of the Andes, indi-

cates presence of oil inland. Up until two years ago, the only oil concessions in force in the Oriente were near Ganso Azul's Agua Caliente field, and in the Contamana area along the Ucayali River.

"The proportions being assumed by the concession activity in the Oriente would make it appear that oil people believe there are virtual subterranean rivers of oil in the area," said Texas Petroleum's Dr. Walter Chappell. In a recent speech in Lima, the geological supervisor of the company's Peruvian division added: "We do not deceive ourselves. But in the Oriente there are locally certain oil possibilities in the pre-Cretaceous formations, although most of us look upon Cretaceous sandstone formations as offering the most encouraging possibilities for oil accumulation."

In the Maranon River concession block, the western and southwestern sections lie in uplifted areas where oil possibilities can be evaluated by surface geological methods. Most of the section, however, is in the swampy and jungle-covered lowlands of the lower Maranon drainage system, at the head of the Amazon. Here geophysical methods, Chappell said, are expected to produce some of the answers on depth of Cretaceous formations and location of folds and faults.

Texas Petroleum, whose concession of nearly 2.5-million acres was chosen deliberately to take advantage of Maranon River transport, has taken the initiative in geological exploration of the lowland area, Chappell says. Included in the company's exploratory program are stratigraphic studies, air photography, a photogrammetric map (which is a joint project with other concessionaires), geophysical exploration, and the drilling of stratigraphic holes.

Oil prospects for the Oriente, as well as the Amazon region in general, may be outlined by wells currently being drilled. The first well in the Maranon basin was spudded in for Texas Petroleum by Santa Fe Drilling Co. on June 12. Site is the south bank of the Maranon about 2½ mi. upstream from the town of San Lorenzo. At last report the well was below 9,760 ft.

Two other companies have followed Texas Petroleum in spudding wells in the Oriente. In the Ucayali River region, Cio Peruana de Petroleo "El Oriente" spudded in Cashiboya No. 1 on Aug. 20 at a site 22 mi. inland from Puerto Oriente on the Ucayali River. At last report the well was drilling below 590 ft. "El Oriente" has a development agreement with three German companies (Deutsche Erdoel A.G., of Hamburg; Gewerkschaft Elwerath, of Hanover; and Wintershall A.G., of Celle) who are doing the drilling.

Ganso Azul spudded in Santa Clara No. 1 on July 19 and reached a depth of 1,305 ft. before suspending drilling in Aug. 2 because of technical difficulties. Drilling is expected to be resumed shortly. Site of the well on the Santa Clara concession is 4 mi. inland from the left bank of the Ucayali, 6 mi. from Orellana. Ganso Azul recently acquired a ⅔ interest in the concession from Peruvian Oils & Minerals and serves as operator.

What happens next in the rush to explore Peru's Oriente? That depends on results, says Texas' Chappell. "It may mean many more years of detailed geophysical work, establishing permanent camps, bringing in heavy rigs for development drilling, construction of pipelines and other installations for oil production and transport. Or it may mean loading the present equipment and taking it back down the Amazon."

Oil prospects in the Maranon basin look good enough to warrant risking millions of dollars in the search. "But we do not forget," says Chappell, "that thus far no commercial oil has been found under somewhat similar geological conditions in eastern Colombia and eastern Ecuador. In no sense are we assured of success in northeastern Peru."

Oil companies in the Maranon basin are not interested in finding a little oil; they're looking for enough oil to make it economically feasible to build a pipeline over the Andes to carry it to the Pacific Coast. Such a pipeline, Chappell says, would mean an outlay of "possibly several hundred million dollars."

One pipeline that has been discussed is considered feasible if and when oil production in the Oriente should reach 100,000 b/d. Cost is calculated at $75-million to $100-million for an 18-in. line from Pucallpa to Borja, and a 30-in. line from Borja to the port of Bayovar on the coast. It would cross the Andes at Porculla Pass.

Currently, Peru's only large refinery is International Petroleum's 45,000 b/d plant at Talara, on the northwest coast. It handles most of the country's crude oil. A small government refinery at Iquitos, in the Oriente, processes Ganso Azul oil.

TRANSPORT OF PERSONNEL and equipment in Oriente jungle is met by Texas Petroleum's houseboats, tug, PBY plane.

GEOLOGISTS ARE AT WORK all over the Oriente. International Petroleum personnel study Huallaga River area.

New government means . . .

U.S. Firms Lose Out in Argentina

Oil development in Argentina is out as far as Standard Oil Co. of California—or any U. S. company—is concerned. Last week Gen. Eduardo Lonardi, provisional president of Argentina's new revolutionary government, tolled the bell over the Peron dictatorship. Barely halfway through his inaugural address, the new president, responding to shouts of "California No" from an audience of a half-million, said: "I will do what is necessary to get required technical elements to drill wells for our own account."

This was his unmistakeable answer to the oil exploration contract signed last April by Socal and the Peron government (PW—Sep.16'55,p24). It was awaiting ratification by the Congress that expired today.

Also nipped in the bud is another oil development proposal recently submitted to Argentina by Standard Oil Co. (N. J.).

Cancellation of the proposed Socal contract was a major victory for the Radical Party, staunchest opponent of Peronism, and founder of Yacimientos Petroliferos Fiscales, the government oil entity. Arturo Fondizi, leader of the Radical Party and a future potential presidential candidate, told PETROLEUM WEEK recently: "Given the necessary machinery, equipment, and know-how, YPF certainly can do the job without any foreign participation in development of our oil resources. YPF never had a chance under Peron."

Actually, the widening dispute over the Socal contract, even in the ranks of the Peronista party, was one of the underlying causes of the revolt. It had become Argentina's biggest political football. It was therefore practically a foregone conclusion that Gen. Lonardi would scrap the $13.5-million to $70-million contract proposal.

Gen. Lonardi elaborated further on his inaugural address later. Since there were no definite commitments on either side in the Socal deal, he said, he was taking advantage of the situation "to terminate a transaction which, according to many respected opinions, foreign ones included, does not benefit us."

It is likely that U. S. capital—and possibly even U. S. companies—may be involved in YPF's future development of Argentina's oil resources. Lonardi's statement, some oil observers in Argentina believe, indicates the government is thinking of employing foreign drilling contractors. Such contractors would very likely be Americans, who would use their own equipment and require dollar payment. (But dollar-shy Argentina would undoubtedly insist on importing casing and drill-pipe from Europe.) Alternatively, YPF may undertake the entire development task alone, guided only by some foreign know-how, as it has formerly.

In either case, Argentina would require a substantial U. S. loan. The latest official report shows the country's monetary reserves at their lowest ebb. Some economic observers anticipate that nothing less than a $1-billion loan will tide the country over its present economic difficulties.

YPF has had a rough time supplying even a fraction of Argentina's oil needs. It is currently producing about 67,500 b/d of total domestic production of 81,000 b/d (the balance being produced by Jersey Standard and Shell). Domestic needs are running at about 200,000 b/d, and Argentina imports 60% of them. Annual cost is more than $200-million in precious foreign exchange, or 20% of total expenditures on all imports.

YPF holds title to more than 95% of the country's oil reserves, which were estimated at about 325-million bbl. last year. YPF had 60 rigs in operation in 1954, with an estimated similar number laid up for lack of spare parts. To replace these, YPF resorted—unsuccessfully—to barter deals with foreign suppliers. Immediate equipment and accessory requirements, some suppliers say, amount to more than $40-million worth.

Oil and gas deposits belong to the government under the Argentine constitution. Three private oil companies —Jersey Standard, Shell, and Petrolera Astra, an Argentine independent —have been operating on limited areas under an old mining law.

The foreign companies have been political targets of virtually every party in the last two decades, and public opinion has been imbued with the belief that they were to blame for the economic straits of Argentina's oil industry. This deep-rooted nationalism has shadowed YPF's entire existence.

What's New / ABROAD

To 'Poor-Boy' in Syria

SYRIA—Syrian-born American drilling contractor J. W. Menhall, of Benton, Ill., has announced he will start oil exploration next month in northeastern Syria in sight of Iraq's Ain Zalah oil field. Equipment and machinery have arrived in Damascus.

Menhall reportedly has decided to go ahead and "poor-boy" his venture himself, after failing to line up major financial backing in the United States this summer. He has formed the Syrian-American Oil & Gas Co., of which he is the major shareholder.

Last spring the Syrian government granted Menhall a 3.6-million-acre concession, with option rights for a total of 7-million acres, not far from present Iraq production over the border. Syrian Petroleum Co., an affiliate of the internationally owned Iraq Petroleum Co., abandoned its concession over this area and other parts of Syria in 1951.

Menhall is planning to drill on a structure mapped out by the IPC affiliate. The latter had already built a camp there and had a fully equipped rig on location when it suddenly decided to withdraw from Syria. The rig and other equipment were left on location and turned over to the Syrian authorities in settlement of certain claims. Menhall reportedly will have access to this equipment.

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Predict Doubled Demand

UNITED KINGDOM—Demand for oil products in the free world outside the U. S. may double or even triple the 1954 levels by 1965, according to Shell Petroleum Co. In a study of world energy sources, the company says the oil industry will fill the gap between total energy requirements and total supplies from coal, natural gas, and hydroelectricity.

Energy demand in the next decade, Shell estimates, will increase at an annual rate of 3.5%. Demand for oil fuels should grow at an annual rate of 7.6% if the rate of growth in other energy sources continues as projected. Demand for petroleum in 1965 is likely to increase at least 100.7% over

1954 levels, with a maximum 202.9% increase possible.

The Shell report foresees no striking development in coal production in the next 10 years. While natural gas supplies will continue to increase rapidly, Shell does not expect their importance in the total energy supply picture to increase much. Hydroelectricity, the report says, may be expected to continue growing at a rate between 5% and 6%.

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Output Hits New Record

VENEZUELA—A new all-time high in crude oil production was set in August, with total average output at 2,169,648 b/d, according to the Ministry of Mines & Hydrocarbons. Production rose 68,518 b/d from July and 19,897 b/d over the previous high set last February. Small increases were scored by Creole, Shell, Mene Grande, Richmond, Atlantic, Pantepec, and Caracas.

Individual daily output averaged: Creole, 984,632; Shell 621,550; Mene Grande, 313,856; Socony, 65,626; Mercedes, 23,615; Richmond, 52,036; Texas, 45,907; Atlantic, 19,559; Sinclair, 22,914; Phillips, 10,424; Pantepec, 7,533; Talon, 1,714; Caracas, 108; Coro, 174.

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VENEZUELA—A Spanish government and banking group is the latest reported to be interested in getting into Venezuela's oil business. Spain's oil marketing monopoly, with the Banco Exterior de Espana and the Banco Iberico, is said to be planning formation of a company to undertake oil operations in the oil-rich South American country.

No new concessions have been granted by Venezuela in 10 years, although oil companies early this year were invited to bid on open areas in the West. Recently a group of Texas oilmen and eastern financiers bought a controlling interest in Venezuela Syndicate, Inc., a royalty company with extensive holdings in Venezuela.

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EGYPT—Socony and Shell may receive 61 long-awaited joint oil exploration permits in the next week (PW—Aug.26'55,p22). Last week Dr. Mohammed Abu Nosseir, Egypt's Minister of Commerce & Industry, told PETROLEUM WEEK he hoped to end the dragging dispute over the grants between the government and the Socony-Shell group around the beginning of October.

Negotiations for the permits, covering a total of 2,327 sq. mi. in the Eastern Desert and Sinai, have been going on intermittently since 1949. Anglo-Egyptian Oilfields, Ltd., (Shell) and Socony Mobil Oil Egypt, Inc., have had priority rights over the areas under a decree law since April, 1953. Company officials, however, have been under the impression the government was dragging its feet in the granting of licenses, despite an advantageous 50-50 deal.

The minister says the only remaining obstacle to granting the permits now is the interpretation of the 50-50 profit split. As soon as this question is settled, he says, the licenses will be signed. Many new prospecting requests filed by independent companies have been awaiting the new mining law, which is expected shortly. The Socony-Shell deal, however, has nothing to do with the new law, the Minister added.

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PERU—The government this week brushed off an Ecuadorean claim affecting a Canadian-held oil concession. It reassured Peruvian Oils & Minerals, Ltd., that its concessions near the border of Ecuador lie well within Peru's boundaries. Last week in Washington, Ecuador's Ambassador Jose R. Chiriboga attacked the 301,000-acre Peruvian concession between the Cenapa and Santiago Rivers as "null" and "arbitrary." The area, he said, lies in a disputed zone. Peru claims, however, that the border was fixed by the 1942 Rio Conference. Peruvian Oils is unconcerned. The concession, it says, represents only an eighth of its total Peruvian holdings—and transportation difficulties make it unimportant at the present time.

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ITALY—The Minister of Industry last week gave further assurances that private oil companies will be given parity treatment with state agencies in the long-awaited revision of Italy's oil law (PW—Sep.16 '55,p25). He has prepared amendments which he will present to the Council of Ministers in the next few weeks.

His aim, the Minister says, is "to give the greatest possible incentive to private initiative, and at the same time to guarantee the general interest with every safeguard. The ENI monopoly in the Po Valley will be continued. In other zones a parity situation between private and state interests will be established. State agencies will be required to give the same exploitation guarantees as required from private agencies." It is imperative, the Minister said, not to leave the petroleum underground. The need, therefore, is to encourage an increasing flow of capital to augment Italy's energy sources.

Meanwhile, the Province of Cremona, in the middle Po Valley, has voted to undertake necessary parliamentary measures to withdraw the province from the ENI oil exploration monopoly. The Provincial Council complains that ENI has done nothing to improve the condition of the economically depressed agricultural province, despite indications of large quantities of unexploited petroleum there. The provincial administration wants to "open its territory to exploration by other entities in free competition."

•

SYRIA—Negotiations with the internationally owned Iraq Petroleum Co. over increased oil transit fees will be resumed, the new Syrian cabinet has announced (PW—Sep. 23 '55,p26). The announcement came 10 days after the deadline originally given by Parliament to the government and the company to reach agreement on increased fees.

The new cabinet, headed by Premier Said Ghazzi, has just received Parliament's vote of confidence. Reportedly it will be allowed more time to continue talks with IPC in a calmer atmosphere than that prevailing in the pre-election furor. Rizkallah Antaki, new National Economy Minister, will conduct the discussions with IPC. He is known to be more moderate than Fakher Kayali, his predecessor.

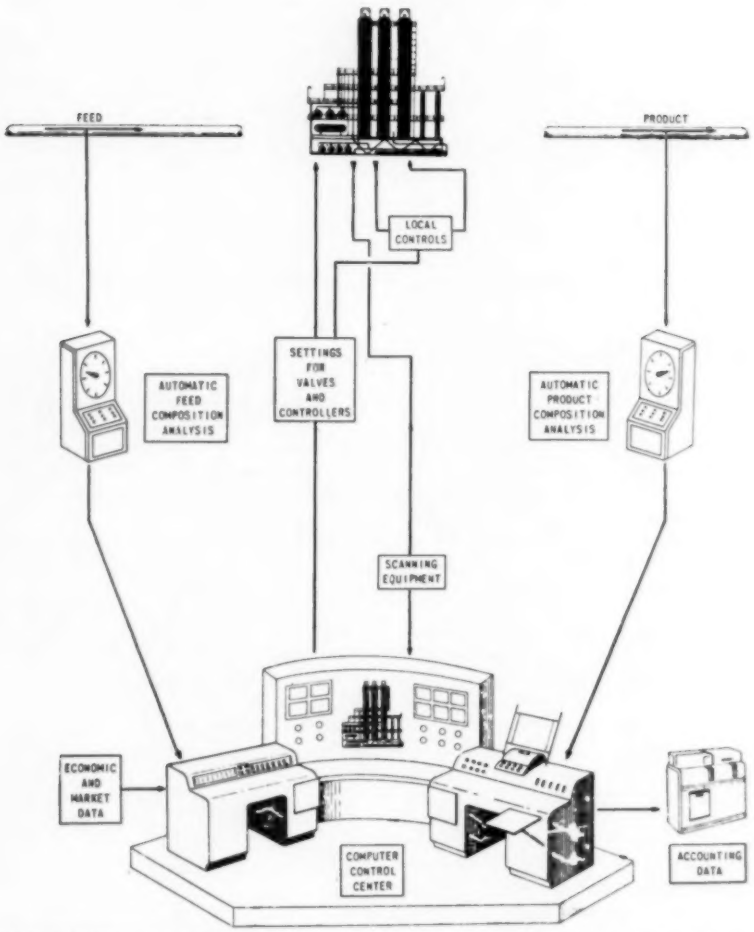
•

QATAR—Daily output of this 30-gravity Persian Gulf oil rose slightly in July, and were well above year-ago rates. July flow averaged roughly 114,157 b/d (officially 459,595 tons for the month), against 113,961 b/d (444,003 tons) in June, and 100,242 b/d (403,584 tons) a year ago.

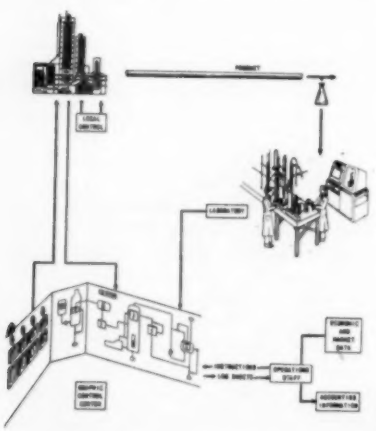
•

COSTA RICA—Union Oil Co. of California is planning to drill two additional wells in southern Costa Rica. Drilling on its third wildcat, Bris No. 1, has been temporarily suspended at 3,500 ft. due to mechanical difficulties. Recently the company asked government permission to extend drilling operations closer to Panama's border. Officials have indicated that operations may have to be shifted into Panama if Costa Rica does not remove its border restriction (PW—Sep.16'55,p25).

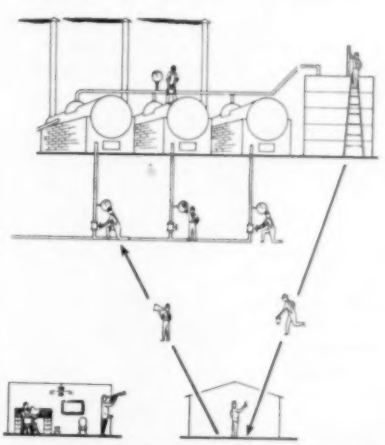
Just How Far Can Automation Go?



TOMORROW'S PROCESSING PLANT will operate from market and economic data fed to it from computer control center. Computers will set product quality and quantity.



TODAY'S REFINERY is largely automatic; the directing "brains" are human.



YESTERDAY'S PLANT was a "batch" operation. Men controlled all operations.

The refinery of tomorrow will be an engineer's "dream" working—a maze of pipes, equipment, and instruments, automatically controlled to turn out products of optimum quality and quantity.

The wide extent to which automation will be utilized in future refineries was described this week in a paper presented at the American Society of Mechanical Engineers' petroleum mechanical engineering conference in New Orleans. The paper was prepared by G. G. Gallagher and R. A. Robinson, instrument engineers of Fluor Corp., Ltd., Los Angeles.

Automation has reached its current high status in refining because the continuous-flow petroleum processes lend themselves more readily to complete automation than do processes which require physical manipulation of solid materials, according to the paper.

It already is possible to design a refinery which would start up and shut down at the push of a button, repair itself to some extent, and otherwise meet minor emergencies.

Robinson and Gallagher point out that some current processes already "repair" themselves to a limited extent. As examples, they cite spare pumps and emergency turbogenerators, all instrumented to start automatically on failure.

But, they add, such complete automation may not be justified economically, or even desirable technically. Start-up and shut-down equipment would be very costly and complicated; unless some simple solution is found, men can do these jobs better.

Automation will be carried out to a practical ultimate in the future refinery by means of a computer control center, the new "brain" of the automatic processing plant.

There has been a steady improvement and refinement in various control mechanisms, reducing the human links in process control, Robinson and Gallagher report. But present control mechanisms are sometimes called "errortype," because they require a deviation from their set point to produce a corrective action. With a coordinated computer-type control system, the instruments downstream from a disturbance will be advised that a change is coming. A corrective action can then be made in anticipation of the change.

The future trend to automatic data-

handling equipment already is firmly established (PW—Jul.8'55,p33). These instruments not only print hourly log sheets in a matter of minutes, but may be equipped with scanning mechanisms to watch over critical points between logging periods. Any off-normal point will sound an alarm and be printed on the log sheet.

The value of manually recorded logs is questionable, in some cases, because of the human error factor and the inability of an operator to read and record the required information quickly enough to be of real value. Process upsets may occur between logging periods and never show up on the logging sheets. With data-handling equipment, Robinson and Gallagher maintain, refiners will be able to get their first accurate study of the interrelation of multiple-process units.

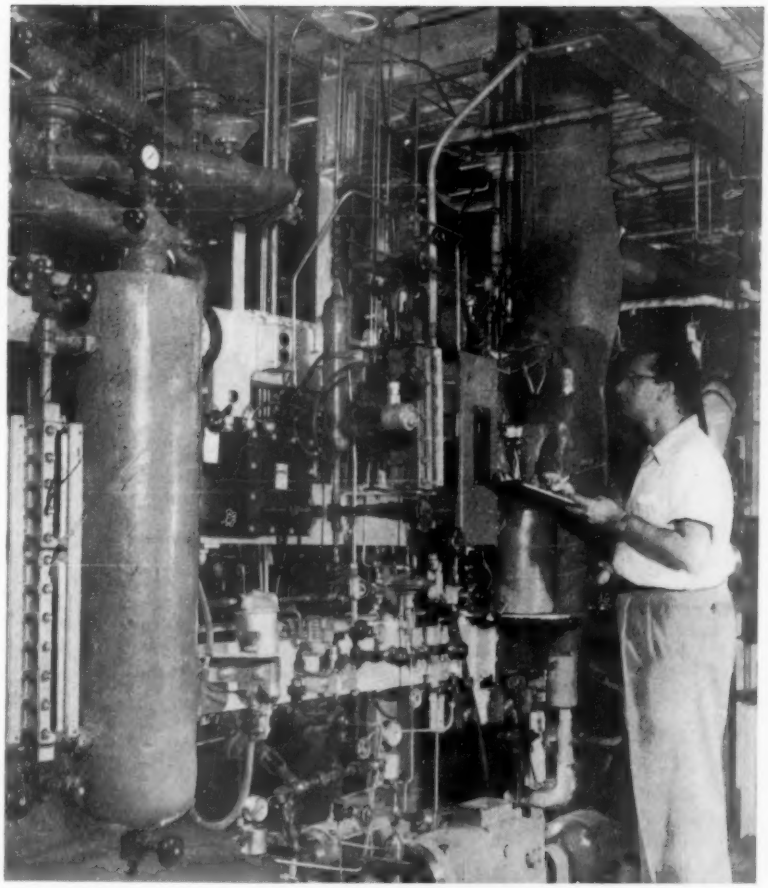
Development of continuous automatic stream-analyzers also is essential to development of the future refinery (PW—Sep.2'55,p25). These analyzers must be continuous and capable of transmitting an acceptable signal to data-handling equipment. Though laboratory analysis has speeded up greatly in recent years, the two report, it still constitutes an unacceptable delay for use as a control feedback.

In addition to analyzing feed stocks, operating data, and product composition, the computer control center will formulate optimum process schedules according to market requirements.

Wide acceptance of data-processing equipment already has considerably reduced time lags in formulating marketing data. In tomorrow's refinery, Robinson and Gallagher predict, this marketing information will be fed automatically into the computer control center, which will correlate it with the other data and set process schedules. Use of marketing information will permit the most economical operation of the refinery, since products will be manufactured in the desired quality and quantity.

Existing methods and equipment must be improved, however, before there can be any appreciable advance toward the goal of an automatic refinery.

Robinson and Gallagher recommend wider use of electronic control circuits to make transmission of process data compatible with the new electronic recording and data processing instruments now coming into use in modern refineries. The practice of using pneumatic circuits with electronic controls slows the recording and tabulating of process information because of the time lags inherent in converting air signals to electronic impulses.



Esso's Lou Dauber is again operating the world's smallest fluid cat cracker now that . . .

Kitty Is Back on Stream

Esso's 4 g/d fluid cat cracker (that's gallons per day) is back on stream after completing a major turnaround.

The tiny unit, at the big Bayway (N. J.) refinery, is operated by the process research division of Esso Research & Engineering Co. Its small output is more than adequate for studies aimed at extending the scope of fluid catalytic cracking into new areas.

Everything about the pilot unit is small except for its three-story height. The height had to be distorted so that flow velocity through the plant would not be affected. The ½-in. flow lines in the unit are scale counterparts of lines that are as large as 8 ft. in diameter in some of the biggest commercial installations. The plant's reactor vessel is only 2 in. wide, as compared with giants up to 35 ft. wide in full scale plants.

The small-scale unit first went on stream early in 1955 and made about 50 short-term runs before the shutdown for major repairs. "Kitty" is subject to breakdowns just like any big "cat."

The unit was designed by Lyman Parrigin and Ernie Musselwhite, of the process research division. Dave Hogin devised a technique for measuring and controlling the flow of spent catalyst from the reactor to the regenerator. Kitty is automatically controlled and has a graphic control panel like those in big commercial plants.

This small pilot unit replaces a 3 b/d pilot-plant model that had made some major contributions to the company's past work, such as proving out the fluid hydroforming process and performing some early tests on fluid coking.

But that veteran plant was expensive to operate, requiring three men per shift on its round-the-clock schedule. The new unit was designed to be more nearly automatic; it can be operated by only one man per shift.

What's New / IN REFINING

Marketer Buys Refinery

Westland Oil Co., which operates bulk plants and service stations in North Dakota and Montana, has entered the high bid of $150,000 for the Williston Basin Refining Co. refinery at Williston.

The bid on the 1,500 b/d plant was submitted at a public auction to sell the assets of the company, declared bankrupt last July (PW—Jul.29'55, p20).

Jack Coughlin, Westland vice-president, says that, if the company's bid is approved by the U. S. referee in bankruptcy, Westland will operate the plant. Westland owns 31 retail stations, 28 products bulk plants, and 15 propane bulk plants in the two states.

•

Du Pont Expands Plant

Du Pont is making a major addition to its tetraethyl lead and refrigerants plant now under construction near Antioch, Calif.

The new unit, which will adjoin and be integrated with the TEL plant, will manufacture sodium, ethyl chloride, trichlorethylene, and perchlorethylene.

Sodium and ethyl chloride are essential ingredients in the manufacture of tetraethyl lead. Trichlorethylene and perchlorethylene are solvents used in industry. The three primary raw materials needed by the new plant—electricity, propane, and salt—will be purchased locally. Propane will be bought from nearby refineries. Salt will come from the San Francisco Bay area where it is extracted from sea water.

The TEL and refrigerants plant is scheduled for completion late next year. The new addition is expected to be completed during early 1957.

•

The future pattern of petrochemical plant construction is "likely" to be in marketing areas rather than tied closely to areas where natural gas is produced, according to a study made for the Commerce Dept. by the Massachusetts Institute of Technology. The study notes that major factors to be considered in location of future petrochemical plants are transportation costs of raw materials, transportation costs of finished products, and the economies associated with plant size.

•

Phillips Chemical Co. has awarded a contract to Fransworth & Chambers Co., Inc., Houston, for the major portion of construction work on a plant to manufacture its new polyethylene plastic. The plant to produce the plastic, called Marlex, will be built at the company's Adams Terminal chemical manufacturing site on the Houston ship channel. It will have a capacity of 110-million lb. a year.

The company, a subsidiary of Phillips Petroleum Co., previously awarded a contract to build a plant to make 120-million lb. per year of ethylene, the basic raw material for the new plastic. The ethylene plant will be adjacent to Phillips' Sweeny (Tex.) refinery. A 75-mile pipeline will be built to move the ethylene to the new plastics plant.

•

Texas Gulf Producing Co. has awarded a contract to Fish Engineering Co., Houston, for construction of an addition to its natural gasoline plant in the Headlee field of east Ector and west Midland counties, Texas. The addition will double the capacity of the plant which is rated to process 15-million cu. ft. of gas daily.

•

The Armed Services Petroleum Purchasing Agency indicated this week a slight drop in initial aviation gasoline requirements for the fiscal year ending June 30, 1956, as compared with this year. The new initial requirements total 37.5-million bbl., as compared with the starting requirements of 38.1-million bbl. for the 1955 fiscal year.

The agency indicated, however, that total fiscal 1956 requirements will approximate the total requirements of about 44-million bbl. of 1955.

Shell Solves Hopper Shipping Problem

The problem: Shell Petroleum Co., Ltd., wanted to ship four giant catalyst hopper vessels, each 30 ft. in diameter and 87 ft. high, from England to refineries at Cardon, Venezuela, and Curacao, Netherlands, West Indies. A problem arose because of the desire for partial assembly of the vessels before shipment in order to speed up their erection at the refineries.

The solution: The hoppers were built in sub-assemblies of five sections each. These could be handled by a 60-ton crane (left), and would fit aboard ship as deck cargo (above). Once at the site, these components can be assembled with a minimum of welding time.

WELDMENTS of "T-1" Steel—made with AWS 12015 low hydrogen coated electrodes and without pre- or post-heating — develop the full 90,000 psi yield strength. As a result, lightweight designs are completely safe and reliable.

NEW USS "T-1" STEEL has great potential for reducing cost of pressure vessels

You've heard of Operation "T-1." You've heard how those dramatic tests proved that, when and if higher design stresses are permitted, USS "T-1" constructional alloy plate steel will make possible larger, stronger pressure vessels, vessels that can be built more easily and at lower over-all cost. As a result of Operation "T-1," several major pressure vessel fabricators have requested approval from the ASME to use USS "T-1" Steel in unfired pressure vessels. Why? For mighty good reasons:

"T-1" Steel has a very high yield strength – 90,000 psi minimum – three times that of conventional plate steels now used in pressure vessels. Yet it is extremely *tough* and can withstand high stresses and pressures even at temperatures far below zero. What's more, USS "T-1" Steel remains strong at *high* temperatures up as high as 900 degrees F.

Yet, "T-1" Steel is easy to fabricate. It can be drilled, machined, or cold formed, and welded or flame-cut *without* pre- or post-heating. **"T-1" can make pressure vessels . . .**

LARGER. For a given pressure and shell thickness, the *radius* of a vessel may be increased in direct proportion to the ratio of working stresses. Result: more storage capacity at lower cost.

STRONGER. For a given radius and shell thickness, the *pressure* may be increased in proportion to the ratio of working stresses. Result: vessels for higher pressures at lower cost.

LIGHTER, EASIER TO BUILD. For a given pressure and radius, the shell thicknesses may be reduced, thus permitting larger vessels to be fabricated *without stress relief*. Result: lower fabrication cost.

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USS

UNITED STATES STEEL

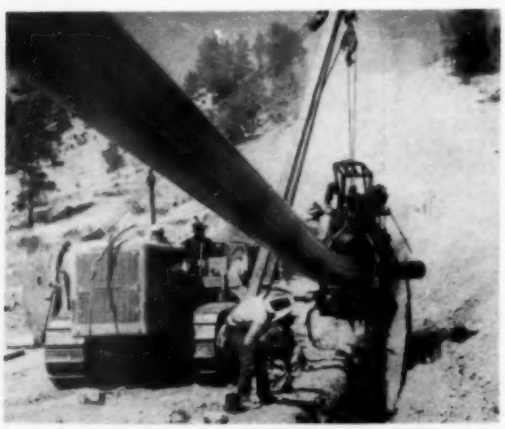
1 The pipeline starts as a row of surveyor's stakes that the cat operator follows with his trenching machine.

2 The trenching machine moves on, and the pipe is hauled up by truck and dropped off in lengths alongside the newly completed trench.

Step by Step, Here's a New Pipeline

3 But it's not a pipeline yet, not until the hooded welders combine the lengths into one long, continuous tube of steel.

For pipeliners, it's an old story of men and machines cutting the earth, stringing the pipe, welding the joints, coating and wrapping the line, and burying it into the soil of America. To oilmen everywhere, it always means a new link in the vast empire of pipes, valves, and pumping stations. These pictures were taken as Shell Pipe Line Corp. laid its 450-mi. Butte Pipe Line from Montana's Poplar and Glendive producing areas to Guernsey and Fort Laramie, Wyo., on the route of the Platte and Western pipelines. The crude line, owned by Shell, Murphy Corp., Placid Oil Co., and Northwest Improvement Co., was started this spring, and is now nearing completion. To handle the Butte line, along with its wholly owned facilities in northeastern Colorado, Shell Pipe Line Corp. is setting up a new Rocky Mountain Division at Casper, Wyo. The division will start operations this weekend.



4 From a machine on the tractor's boom, the line gets a lacquer-like coat, then is dropped in the trench.

5 Finally, and without ceremony, the pipeline is buried: The last tractor backfills the trench and smooths over the raw dirt.

SPECIALLY DESIGNED PIGS—scrapers (right) and plugs—make it help move . . .

Natural Gasoline by Pipeline

One of the pipelines' and refineries' more perplexing economic problems —how to move batches of natural gasoline through crude lines—has been solved to near perfection, according to Phillips Pipe Line Co.

C. N. Adams, assistant district superintendent for Phillips at Odessa, Tex., explained the solution this week at the American Society of Mechanical Engineers petroleum mechanical engineering conference at New Orleans.

The volume of natural gasoline produced from stripping plants in the field is not great enough to justify separate pipelines to move the liquid to refineries, where it is used as a blending stock for making motor fuel. Rail cars and tank trucks have always been the primary means of transportation—but they are expensive. Some companies have experimented with moving natural gasoline through crude lines, but with unsatisfactory results.

Until Phillips' process was developed, natural gasoline became contaminated when it was moved through crude lines. Gasoline started out clean and clear. But by the time it got to the refinery, it was filled with crude oil particles and other foreign matter. In nearly every case, it had to be reprocessed, and expense just about nullified any economic gain made by using the crude line.

The main cause of contamination was the interior condition of the pipe. During the running of crude, paraffin is deposited on the inner surfaces. The paraffin gathered scale, rust, and dirt which, in turn, was picked up by the natural gasoline.

Heart of the solution consists of mechanical scrapers pushed through the lines in order to remove excessive paraffin.

Phillips experimented with many types of scrapers before it solved the problem to its satisfaction. At first, knife-type scrapers were used to remove the paraffin, but these failed to decrease contamination to any significant degree. Wear-compensating brush-type scrapers were considered, but discarded because the many miter welds in the pipeline would obstruct them. But the manufacturer of these scrapers, T. D. Williamson, Inc., of Tulsa, cooperated and turned out a swivel-joint model that provided a solution to the problem.

These new scrapers were run on schedules before movements of gasoline, and reduced the contaminated gasoline to below 35% of the total moved. Through continued experimentation, Phillips found an ideal scraper schedule. A brush-type scraper was run through the pipe 24 hours, 4 hours, and 1 hour before the front face of the natural gasoline.

While experiments with scrapers were going on, Phillips also tried methods of separating natural gasoline from crude oil at the interface. It found that rubber batching plugs would keep the intermixing of crude and gasoline at a minimum. But they caused the gum content of the gasoline to rise, because they rubbed against pipe walls, and loosened imbedded paraffin that disolved in the gasoline. This was reduced by operating the flow at maximum rate.

With these two difficulties solved, Phillips then established an operating technique for handling natural gasoline. Employees were indoctrinated in the importance of maintaining a "clean" stream. All valves and fittings were checked frequently for leakage.

After three years of work (Phillips started experiments in 1951), contamination was reduced to a 3%-5% range. This means that costly reprocessing has been almost eliminated, and storage for contaminated batches can be put to other use.

The company found that handling natural gasoline causes some changes from normal pipeline operations. Greater safety precautions and closer communications are needed during "batching" of gasoline. Control equipment sometimes had to be altered.

What's New
IN TRANSPORTATION

Socony Mobil Oil Co. is completing construction that will more than double storage and handling capacity at its St. Paul (Minn.) terminal. The company also announces it plans to increase its number of dealers in the Twin Cities area.

The construction consists of a 12½-mi. pipeline, six storage tanks, and offices and a repair shop. The 8-in. pipeline connects the terminal with the Great Northern Refinery, at Pine Bend. Socony Mobil expects the pipeline and river barges to supply the terminal with more than 100-million gal. of light petroleum products, chiefly gasoline, a year. Construction cost is $720,000—$300,000 on the pipeline, $335,000 on the storage tanks, and $85,000 on the repair shop and office.

•

Two major oil firms in Great Britain have placed combined orders for 40 new tankers for delivery by 1960. Shell Tankers, Ltd., and Esso Petroleum Co., Ltd., are the companies involved: Shell has ordered 34 vessels, Esso the other six. The development follows the signing of long-term heavy fuel oil contracts by the Central Electricity Authority of London with Esso, and with Shell-Mex & B. P., Ltd., a joint marketing company for Shell and British Petroleum in Great Britain (PW—Jul.8'55,p91).

•

Tank truck rates on short hauls of refined and black oil will likely increase by ½¢ per 100 lb. in California. The California Tank Truck Operators Tariff Bureau said last week it would ask the state public utilities commission for the increase.

Antifreeze Guarantee Spreads

Major oil companies will take a cold, hard look this winter at the expansion of the "guaranteed" radiator protection plan—an antifreeze sales stimulant developed four seasons ago by Standard Oil Co. (Ohio).

The guarantee gimmick got little attention when Sohio was the only company using it. Sohio markets only in Ohio. But then Pure Oil Co. picked up the plan (with variations) and spread it from the Midwest to the East Coast and throughout the South.

Now Standard Oil Co. (Ind.) has boarded the bandwagon, and will carry the guarantee further west (PW—Sep. 16'55,p26).

Motorists in 32 states, therefore, will get a chance to sign up for some form of radiator protection guarantee this winter. And the companies that don't offer such a plan will get a good idea of its competitive impact.

Basically, the guarantee system is geared to cooling-system maintenance at motorist expense, and antifreeze replacement at company expense.

In all plans the motorist must first have his vehicle's radiator, hose, fan belt, etc., inspected and put in A-1 working order. He pays for all necessary clean-outs, repairs, lubrication, or replacements.

Then he buys enough permanent-type antifreeze to protect the vehicle in temperatures down to 20 to 40 degrees below zero, depending upon the area and the scope of the plan offered.

Also, according to schedules which differ among the companies, the motorist must have his cooling-system reinspected from time to time during the guarantee period. And again he pays for anything necessary to keep it up to par. But all antifreeze losses are replaced free, at any station operated or franchised by company from which the guarantee was obtained. The company, in turn, reimburses the dealer for antifreeze replacements.

(No insurance is given against a cracked block. The companies claim such a mishap is almost impossible if the motorist lives up to terms of the guarantee.)

The motorist gets cooling-system security. The dealer eliminates much of his "last minute" antifreeze rush. And he also gets more sales opportunities.

The guarantee programs are open to the motorist only in the fall months, before the real cold-snaps set in. Usually, motorists put off antifreeze installation because of fear that the liquid will boil off before it's really needed. With a guarantee, this fear is eliminated. "Drain-jobs" can be arranged at the convenience of both driver and dealer.

SOHIO SERVICEMAN checks cooling system—for free—on car protected by Sohio antifreeze guarantee (foreground).

The motorist, furthermore, often has to wait at the service station for antifreeze installation. If the dealer doesn't have a pile-up of impatient customers—traditional at nonguarantee stations—he gets a better chance to discuss the customer's possible need for tires, batteries, accessories, or general "winterization" requirements.

Sohio, in fact, has a separate plan for guaranteed winter start-ups that opens right after the antifreeze guarantee period closes. Again TBA items are checked, but the dealer's big push is for winter-grade lube sales and fuel-line antifreeze. Again, too, the emphasis is on top-shape vehicle condition before the guarantee may be obtained.

Possibly the only drawback to industry-wide adoption of the guarantee system is the uncertainty of proper dealer application.

An estimated 200,000 motorists take advantage of Sohio's radiator protection plan. And Pure Oil figures some 500,000 customers participate in its plan.

The payout of these two companies for antifreeze replacements has not been publicized. But Sohio reportedly spends only about $1 for every $4 worth of new business attracted by the guarantee. And Pure estimates its plan costs less than 2% of total sales.

These figures, though, are possible only with an effective dealer network. The preliminary inspection work is the key to success. If a dealer falls down on this job, and passes out guarantees indiscriminately, the ratio of profit to payout could be reversed in no time.

It's the motorist who gets the written guarantee—not the company.

What's New

IN MARKETING

The same seven oil companies hit with a $240,000 antitrust verdict last summer in the so-called "Moore case" now face a similar suit from another independent retailer. Sydney Brenner, a dealer in Emeryville, Calif., is suing for $35,000 damages under the Sherman and Clayton antitrust acts. Like George Moore, former Seattle service station operator (PW—Jul.8'55,p84), Brenner claims the West Coast majors forced him out of business by refusing to supply his station.

•

The independent Oriental Refining Co. is still determined to retain its share of the Colorado gasoline market, despite price-cut punches last week from major competitors. The price of regular dropped as low as 14.9¢ (ex taxes) in the Denver area as major-brand retailers battled Oriental's 15.9¢ posting. The independent's price, though, remained steady. And the company said it will open new outlets in northern Colorado and southern Wyoming, if necessary, to maintain gallonage.

•

Phillips Petroleum Co. is expanding its invasion of the East Coast (PW—Jul.15'55,p32). Little Oil Co., a Socony-Mobil distributor with 45 outlets in the Richmond area, will start handling "Phillips 66" gasoline May 1. A Shell jobber in Petersburg, Va., is also reported ready to switch to Phillips.

The Market Trend

Sept. 30: The Summer's Over

In distillate markets, Sept. 30, not Sept. 23, is the last day of summer. This is the close of the May-through-September period when marketers do their best to stimulate off-season sales of distillate fuel oils. It's also the time when resellers get deferred bills for all the oil they have picked up during the past five months.

In the East and the Midwest, Sept. 30 this year has a special meaning for many resellers of No. 2 fuel. Last week, Sun Oil Co. notified its customers that its 0.5¢ temporary discount on kerosine and distillate fuel oils would be withdrawn at the end of the month. This discount was one of several offers that East Coast and some Midwest marketers made to encourage their customers to fill their tanks in the summer season. Most East Coast marketers also agreed to protect their resellers' customers against price declines from the time they picked up oil until the close of business Sept. 30.

Sun was the first major marketer this season to announce termination of the summer-fill discount. The move came as a surprise to many resellers, for in recent weeks distillates have been in free supply, to put it mildly, along the eastern seaboard. Many resellers had expected the allowance to be continued until later in the season. Unlike price protection and deferred billing, however, a "temporary" discount has no stipulated expiration date. Sun had instituted the allowance along the Atlantic Coast on May 2. At Ohio, Michigan, and Indiana points—supplied from the company's Toledo refinery—the discount started on June 1.

With the summer over, the annual question arises: How successful were the summer-fill incentives? Most major companies swear by them. They say they get their customers' distillate storage brimful early in the summer, and top it out in late September. But independents don't care for all the ins-and-outs of the summer-fill plans. For one thing, smaller companies don't have the financial backing to carry their customers on an extended line of credit. They add that summer-fill incentives tend to stifle spot barge trading. And one critical major has this to say: An analysis of his retail customers' distillate storage shows that the average tank is always just about half full—summer or winter.

Gasoline:

A strong price position continues for all grades of motor fuel in the Gulf Coast cargo market. Offerings of premium and regular-grade for early October lifting still are on the scanty side.

There is no easing in avgas supply, either. A major supplier says that he is short of product, has bought "substantial" quantities in recent weeks, and is willing to buy more if he can find it.

Resid:

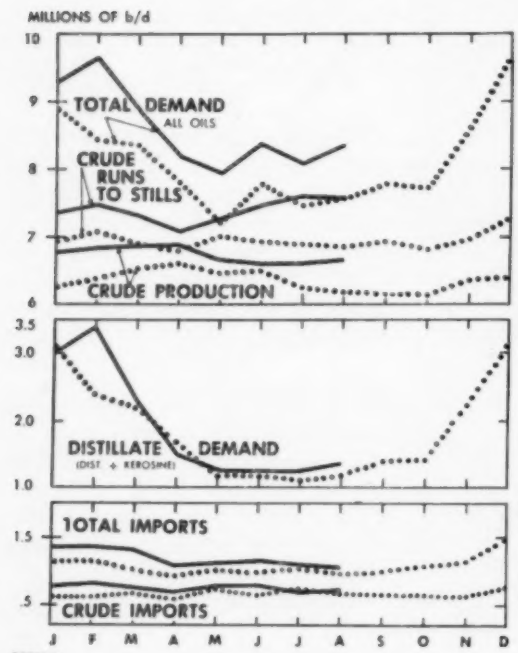
A New York supplier cut his price 10¢ a bbl. for heavy fuel, 1% sulfur max. His new quotations are: $2.73 per bbl. for tank car lots; $2.70 for barges.

Tankers:

Chartering in the world's ocean routes continues extremely active, but with very little change in spot rates. One unusual trip was a black oil fixture from Valona, Albania, to Danzig. Another was a gasoline export from Italy to southern France or North Africa, according to the charterer's option.

PETROLEUM WEEK'S

Fingertip Figures



TOTAL DEMAND

Latest 4-week average	8.352
Year ago	7.646

RUNS TO STILLS

Latest week	7.404
Previous week	7.471
Year ago	6.999

CRUDE PRODUCTION

Latest week	6.671
Previous week	6.684
Year ago	6.183

DISTILLATE DEMAND

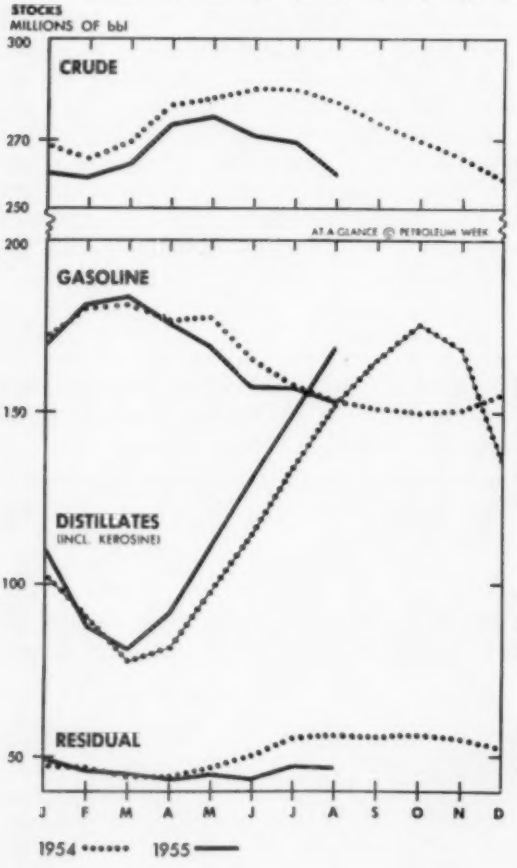
Latest 4-week average	1.400
Year ago	1.321

TOTAL IMPORTS

Latest week	1.215
Previous week	.977
Year ago	1.196

CRUDE IMPORTS

Latest week	.892
Previous week	.653
Year ago	.891



CRUDE STOCKS

Week ended 9-17	255.5
Previous week	255.6
Year ago	272.6

GASOLINE

Latest week	151.8
Previous week	152.2
Year ago	151.1

DISTILLATES

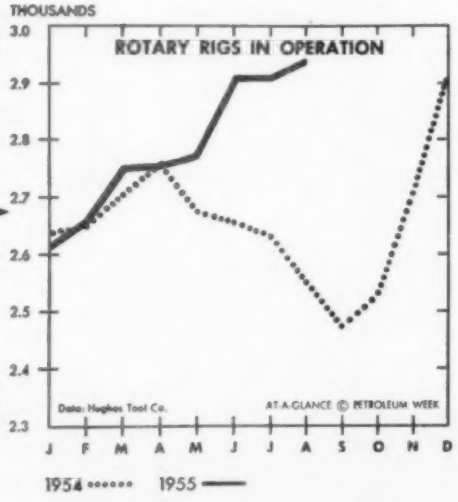
Latest week	179.1
Previous week	176.9
Year ago	163.8

ROTARY RIGS

Latest week	2.958
Previous week	3.003
Year ago	2.474

RESIDUAL

Latest week	46.9
Previous week	46.7
Year ago	57.2



DEMAND FOR DOMESTIC CRUDE oil in October is estimated at 6,750,000 b/d by the Bureau of Mines, a gain of 7.1% (450,000 b/d) over actual demand last October. The forecast for October is 50,000 b/d higher than the bureau's estimate of domestic crude demand during September.

In its monthly forecast the bureau again took note of the high level of crude oil runs to stills with the comment that runs have been "substantially above seasonal requirements since the end of June." Based on an estimated rate for September, refinery runs since the end of June have averaged about 7,565,000 b/d, or 638,000 b/d above the level for the like three months of last year. The bureau estimates required throughput for October at 7,430,000 b/d. This would be a reduction of nearly 90,000 b/d from the indicated rate during September, but still 596,000 b/d higher than actual runs last October.

Gasoline demand in October is estimated by the bureau at 3,677,000 b/d, which would represent a gain of 162,000 b/d over last October. Indicated gasoline demand in September averaged about 3,900,000 b/d, some 100,000 b/d above the bureau's forecast for the month.

The Market Place AROUND THE WORLD

Current key crude and refined oil prices compiled for PETROLEUM WEEK by Platt's OILGRAM Price Service, a McGraw-Hill Publication.

All Prices as of September 26

Bold face type indicates changes from previous week

KEY PRICES—REFINED PRODUCTS

(¢ per gal., except dollars per bbl. where $ is shown)

Western Hemisphere

U. S. Gulf Coast, cargoes
- Gasoline, 97 oct prem. 13-13.5
- Gasoline, 90 oct reg. 11-11.5
- Kerosine 8.75-9.75
- Heating oil, No. 2 8.5-9.25
- Gas oil, 48-52 d.i. 8.625-9.125
- Fuel oil, bunker "C" $2.10-2.15

Caribbean, cargoes
- Avgas, Grade 100/130 16.75
- Gasoline, 93 oct research prem. 11.5
- Gasoline, 87 oct research reg. 10.5
- Gasoline, 79 oct research 9.75
- Gasoline, 70-72 oct motor method 9.5
- Kerosine 8.75
- Heating oil, No. 2 8.5
- Gas oil, 48-52 d.i. 8.625
- Fuel oil, bunker "C" $2.10

New York Harbor, barges
- **Gasoline, 89 oct reg 12.25**
- Kerosine 10.55
- Heating oil, No. 2 10.05
- Fuel oil, No. 6 $2.65

Okla.-Group 3, northern shpt, bulk
- Gasoline, 86 oct reg. 11-11.5
- Kerosine 9.25-9.5
- Heating oil, No. 2 8-8.5
- Fuel oil, No. 6 $1.75-1.90

Chicago, bulk
- Gasoline, 86 oct reg. 12
- Heating oil, No. 2 9.25-10.3
- Fuel oil, No. 6, high sulfur 7.15-7.35

Los Angeles, rack
- Gasoline, 84 oct reg. 13.1-13.15
- Stove dist., PS 100 9.25-10
- Diesel fuel, PS 200 8.75-9.25
- Light fuel, PS 300 $2.05-2.10
- Heavy fuel, PS 400 $1.70-1.85

Natural Gasoline, Grade 26-70
- FOB Group 3 5.5
- FOB Breckenridge, Tex. 5

Penna. Lubes
- **Bright stock, 25 p.t. 18.5-20**
- 200 vis. neutral, 25 p.t. 18.5-20

Mid-Continent Lubes, Tulsa basis
- Bright stock, solvent, 95 v.i. 21-22
- Neutral, solvent, 200-210 vis. 16.75-17.75

Gulf Coast Lubes
- **Bright stock, solvent, 95 v.i. 21-23**
- **Neutral, solvent, 200 vis. 17.5-19.5**

Eastern Hemisphere

Singapore, cargoes
- Avgas, Grade 100/130 18.375
- Gasoline, 79 oct research 10.25
- Gasoline, 70-72 oct motor method 10
- Kerosine 9.375
- Gas oil, 48 d.i. minimum 9.125
- Fuel oil, light $3.10

KEY PRICES—CRUDE OIL

(2¢ differential per deg. of grav. applies except as noted)

Western Hemisphere

United States (at the well)
- Mid-Continent, 36.0-36.9 grav. $2.82
- North Dakota, 36.0-36.9 grav. 2.82
- Texas:
  - Gulf Coast, low cold test, 26.0-26.9 grav. 2.95
  - Gulf Coast, upper & lower, 26.0-26.9 grav. 2.82
  - West Texas sweet, 36.0-36.9 2.82
  - West Texas-New Mexico intermediate, 36.0-36.9 2.75
  - West Texas-New Mexico sour, 32.0-32.9 2.61
  - East Texas, flat price 2.90
  - Mirando, 28.0-28.9 grav. 2.96
- Illinois Basin, flat price 2.90
- Penna. Grade, Bradford dist., flat price 3.60
- California, Signal Hill, 21.0-21.9 grav. 2.30†
- North Louisiana-Arkansas, 36.0-36.9 grav. 2.82
- Wyoming sweet, 36.0-36.9 2.82
- Wyoming sour, 32.0-32.9 2.48

Canada (flat prices, at the well)
- Acheson-Stony Plain (Alta.) D-2, D-3, L.C. 2.54
- Leduc-Woodbend (Alta.) D-2, D-3 2.60
- Redwater (Alta.) D-3 2.49
- Daily-Mississippian (Man.) 2.34
- Smiley-Viking (Sask.) 2.24

Venezuela (Cargoes, FOB lifting port designated)
- Cumarebo, 48.0-48.9, Tucupido 3.40
- San Joaquin, 41.0-41.9, Puerto la Cruz 3.04
- Oficina, 35.0-35.9, Puerto la Cruz 2.88
- Tia Juana Medium, 26.5-26.9, Amuay 2.30*
- Bachaquero, 16.5-16.9, Amuay, Las Piedras 1.90**
- West Tarra, 37.0-37.9, Cardon 2.99
- Lagunillas Heavy, flat prices: Cardon 1.90
  Amuay, Las Piedras 2.05

Differential per ½ deg. grav.: (*) 2.5¢ bbl. (**) 3.5¢ bbl.
†Differential per deg. of grav. varies.

Eastern Hemisphere

Middle East, Persian Gulf (Cargoes, FOB lifting port)
- Arabian, 36.0-36.9, Ras Tanura 1.97
- Basrah, 36.0-36.9, Fao 1.92
- Iranian, 34.0-34.9, Bandar Mashur 1.91
- Iranian, 34.0-34.9, Abadan 1.86
- Iraq, 36.0-36.9, Fao 1.92
- Kuwait, 31.0-31.9, Mina-al-Ahmadi 1.72
- Qatar, 39.0-39.9, Umm Said 2.06

Middle East, E. Mediterranean
- Arabian, 36.0-36.9, Sidon 2.39
- Iraq, 36.0-36.9, Tripoli, Banias 2.39

Far East (Cargoes, FOB Lutong, Sarawak)
- Seria Light, 37-38 grav. 2.60

KEY TANKER RATES

(Last paid, per long ton, single voyage)
- U. S. Gulf-New York, clean (USMC –15%) $2.42
- U. S. Gulf-New York, dirty (USMC –17½%) $2.35
- **NWI-USNH, dirty (USMC –30%) $1.89**
- **NWI-UK/Continent, dirty (MOT –5%) 30/10***
- Persian Gulf-UK/Cont., dirty (Scale –5%) 51/8*
- **Persian Gulf-USNH, dirty (USMC –42½%) $7.30**

**Sterling*

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W. F. Holbrook
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Superior 1-7000

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DEPT/Oil Men at Work

J. S. LEONARD, assistant production manager for Ohio Oil Co.'s Casper division, has been advanced to manager of the Tulsa division. He succeeds **Edward B. Stewart,** who died Sept. 10. **N. E. Trumbull,** division production superintendent at Terre Haute, will replace Leonard at Casper. **J. H. Shonk,** Trumbull's assistant, will move up to superintendent at Terre Haute.

J. W. (WILMONT) HUNT, oil operations manager for W. M. & A. P. Fuller, has relocated his headquarters in Midland after three years in Denver. The organization will maintain a district office in Denver, but Hunt will devote most of his attention to the Permian Basin and adjacent areas.

HORACE P. GOODRICH, southwestern division manager for Drilling & Exploration Co., is the new chairman of the Permian Basin Chapter, American Assn. of Oilwell Drilling Contractors. He succeeds **E. G. Durrett,** Permian Basin division manager for Delta Gulf Drilling Co. **Jack Haberlein,** executive of Schoenfeld-Hunter-Kitch Drilling Co., is new vice-chairman. **Douglas B. Wright,** secretary-treasurer for Carl B. King Drilling Co. of Texas, is secretary-treasurer for the chapter.

WALTER S. HALLANAN, president of Plymouth Oil Co., and chairman of the National Petroleum Council, has been elected president, also, of both Republic Pipe Line Co. and Duval Pipe Line Co., Pittsburgh. He succeeds **O. D. Robinson,** who died last month. Hallanan's nephew, **Thomas B. Hallanan,** has been named assistant general manager of the pipeline companies.

FRANK C. FOLGER, JR., has been named chief unitization and proration engineer for Sunray Mid-Continent Oil Co. He joined Sunray in 1951. **Tom P. Harris,** new waterflood engineer, was secondary recovery superintendent for Mid-Continent before it merged this year with Sunray. **Walter N. Kellogg,** named chief reservoir engineer, joined the organization in 1950. **G. Dudley Strother, Jr.,** appointed chief development engineer, was senior engineer in Sunray's production department before the merger.

M. R. ERICKSON and **C. L. CAIN** head new Canadian exploration districts for Stanolind Oil & Gas Co. Erickson will have charge of the Calgary district, including Saskatchewan, Manitoba, and that part of Alberta south of Edmonton. On his staff will be **D. E. Powley,** geologist; **A. H. Jukes,** landman, and **A. J. Hearst,** exploration clerk. Cain's new north Canadian district will encompass the rest of Stanolind's Canadian division. His office will also be in Calgary. On his staff will be **H. A. Baker,** geologist; **N. H. Bartley,** landman; **C. A. Willner,** geophysicist, and **M. J. Cush,** exploration clerk.

JESSE W. PENNINGTON has been made senior geologist in British American Oil Co.'s Oklahoma City district. He joined the company in 1952, after working for The Carter Oil Co.

RALPH BOX is superintendent of Lawton Oil Corp.'s new district production office in Midland. **Bill R. Oliver** is district geologist. The firm, with headquarters in Magnolia, Ark., plans to open another district office in downtown Midland next year.

G. R. WALKER has been appointed treasurer of International Petroleum Co., Ltd., Coral Gables, Fla. He was with Standard Oil Co. (N. J.) from 1948 until 1951, when he joined International as assistant treasurer.

D. M. MORRISON, former vice-president in charge of manufacturing for Shell Oil Co. of Canada, Ltd., has joined Trans Mountain Oil Pipe Line Co., Vancouver, as president. He was with Shell 28 years. He has also headed the Canadian government's Petroleum Division in the Ministry of Defense Production.

CARL W. REHFUSS has been named general manager of Standard Oil Co. of California's Richmond refinery. He succeeds **R. K. Rowell**, who is leaving after 38 years with the company. Rehfuss, Rowell's assistant, has been with Standard since 1924. Replacing him as assistant will be **M. F. Miller**, operations manager at Richmond. Succeeding Miller, in turn, will be **T. M. Sheehy**, assistant manager of the operations planning division of the manufacturing department.

J. PELHAM JOHNSTON has opened oil lease brokerage offices at Casper, Wyo., after resigning as assistant secretary and manager for United States operations of Williston Oil & Gas Corp.

JOHN R. SUMAN, recently retired vice-president and director of production of Standard Oil Co. (N. J.), has been elected a director of Schlumberger Well Surveying Corp.

ALBERT H. HEDDEN, former division geologist for Humble Oil & Refining Co., will handle consulting work and drilling deals from an office in the V & J Tower, Midland.

G. M. (MOON) MARTIN has been promoted to production division superintendent, at Pampa, Tex., for Cabot Carbon Co. He was superintendent of the company's West Texas-New Mexico district. He replaces **A. D. McNamara**, who died recently. Martin, in turn, will be replaced by **French Board, Jr.**, assistant district superintendent.

J. B. ARCHER will manage both the marine department of Shell Oil Co. of Canada, Ltd., and Shell Canadian Tankers, Ltd. He has been assistant manager of Shell's marine department. He has been with the company since 1947. He succeeds **K. W. Martin** who has been named transportation manager. Archer's office will be in Toronto.

JOHN ROSS WILLIAMSON, new chief tidelands inspector for the Texas Land Commission, steps into new responsibilities undertaken by the commission. **J. Earl Rudder**, land commissioner, says land office supervisors will still maintain their traditional duty "to see that tidelands are kept safe for fishermen, shrimpers, and sportsmen." But the newly reorganized staff's purpose now will be to see that the state gets its full share of oil, gas, and sulphur produced from state leases. Williamson will have his offices in the Terrace Hotel, Corpus Christi.

F. B. NEPTUNE has been elevated from acting manager to manager of products pipelines and terminals in Phillips Petroleum Co.'s supply and transportation department. He was also elected a vice-president of the firm, a wholly owned subsidiary of Phillips Petroleum Co. He entered the parent company in 1931, as a member of the research and development staff, and transferred to the pipeline company in 1936, as chief chemist.

ROBERT W. SCHIESSLER, associate professor of chemistry at Pennsylvania State University, has joined Socony Mobil Oil Co. as technical director in charge of research at the company's laboratories in Paulsboro, N. J. He succeeds **Dr. Frederick L. Matthews**, who will remain as assistant to the new director. **Ralph E. Albright**, fuels section supervisor, will succeed **George H. S. Snyder** as technical director of the products division. Snyder has been named assistant to **Theodore W. Nelson**, director of the research and development laboratories.

F. O. NEWTON, new vice-president of Universal Oil Products Co., will have newly created responsibilities for supply and distribution. He has been with UOP for more than 20 years. He is a director of Universal-Matthey Products, Ltd., a subsidiary of UOP. The company also announced that **W. J. Peck**, a member of the legal staff since 1953, has been elected an assistant secretary.

H. U. GARRETT will continue as president of Garrett Oil Tools, Inc., of Longview, Tex. Ownership of the firm will be transferred Oct. 3 to U.S. Industries, Inc. Garrett will remain in its present quarters, with the same management, personnel, and policies. But it will be operated as a division of U.S. Industries. The company manufactures gas lift valves and many other specialized tools for the producing, transmission, and distribution divisions of the oil industry.

N. B. LARSH, A. A. JONES, and **GEORGE O. CARR** have formed a partnership in Midland to handle drilling deals and trading in leases, royalties, and mineral rights. Larsh is a geologist; Jones and Carr are brokers. All have oil company backgrounds.

CLASSIFIED

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Use this Classified Advertising Section for bringing business needs or opportunities to the attention of men associated in administrative, executive, management, sales and responsible technical, engineering and operating capacities within the oil industry.

PETROLEUM WEEK

The Lesson of Citronelle

TWO OIL DISCOVERIES on opposite sides of the Atlantic within recent months give dramatic evidence of how a nation's progress can be stimulated or impeded by its laws.

At point in this instance are those laws by which some nations usurp the rights of the individual to the full fruits of the land upon which he lives, through creation of monopolistic agencies.

THE DISCOVERIES were at Alanno, on Italy's Adriatic Coast, and at Citronelle, in Mobile County, Ala. For years each area was explored with something less than sensational results. The search in Italy was conducted by the state monopoly; the one in Alabama by men unfettered by government restrictions, answerable only to themselves, and guided by a faith that endured after logic wore thin.

Eventually, the government's spiritless search was called off. And chances are the oil would have remained underground for an indefinite time, useless and undisturbed, had not a subsidiary of free-enterprise Gulf Oil Corp. finally wangled reluctant permission from the Italians to have a go at vitalizing their oil-starved economy. Gulf scored on the first try—and, after recovering from the shock, the government monopoly cranked up its machinery and drilled a confirmation well, which was completed just last week.

Meanwhile, the Citronelle search went on unabated, backed by the money, know-how, and faith of major companies (Gulf among them), independents, railroads, a drilling contractor, and a man named Everett Eaves, just a plain citizen with high hopes. The result, of course, was another of the now-routine successes which have helped to make—and keep—America great.

There are those on this side of the Atlantic who could learn much from these two developments, among them U.S. Senators Lister Hill and John Sparkman. Long before the Citronelle discovery these two gentlemen wanted a law placing the "tidelands" under federal ownership and regulation.

It was just one more law, of course, and—aside from the issue of whether a few feet of water should affect state ownership—not vicious. But then the difference between a nation like America and one like Italy is largely composed of a string of just such laws which vest more and more ownership in the federal government and take more and more incentive from the individual.

THERE IS IRONY in the fact that the senators who espoused this one additional legal step away from free-enterprise principles are both from Alabama, which now may gain so much in the way of new jobs, wealth, industries, schools, homes, and taxes from this free-enterprise triumph at Citronelle.

Wise man with a well . . .

Oil's of little use where nature put it. Somebody's got to get it out of there. Somebody's got to keep the pumps pumping, and the engines humming, and the wells producing. Somebody's got to know how much oil's coming up, and if it's enough . . . or too much . . . or too little. They call this man a pumper. He's a wise man with a well. He can tell by the sounds coming up the pipe if all is all right 2 and 3 miles down. And if it isn't, he knows what to do. He's a big, important reason why Texaco products keep flowing steadily to meet a constant, 48-state demand.

The Texas Company

TEXACO

PETROJEL

Economical new DOWELL treatment uses thickened lease crude oil for low-fluid-loss fracturing medium

By thickening lease crude oil, diesel fuel or kerosene to make them suspend sand . . . Dowell's new, exclusive Petrojel* treatment offers you an economical fracturing service to increase oil production.

Dowell engineers can mix Petrojel materials to almost any desired thickness. They add chemical agents to almost any crude base, either in truck-mounted mixing tanks or in the operator's own lease tanks.

Performance-wise, Petrojel brings you the advantages of both low fluid loss and excellent resistance to thinning at bottom hole temperatures up to 200°F. Pumping through sand will not reduce Petrojel's carrying ability. The surface tension of the Petrojel fluid is less than that of its original base oil. Treatments to date have shown 500 to 2000 p.s.i. less pressure when pumping through tubing than that required with other fracturing media. Its fracturing job done, Petrojel is diluted by well fluids to near its original consistency, so that it returns easily to the well bore.

For service, or for more information, call any of the 165 Dowell offices in the United States and Canada; in Venezuela, contact United Oilwell Service. Or write Dowell Incorporated, Tulsa 1, Oklahoma, Department I-75.

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